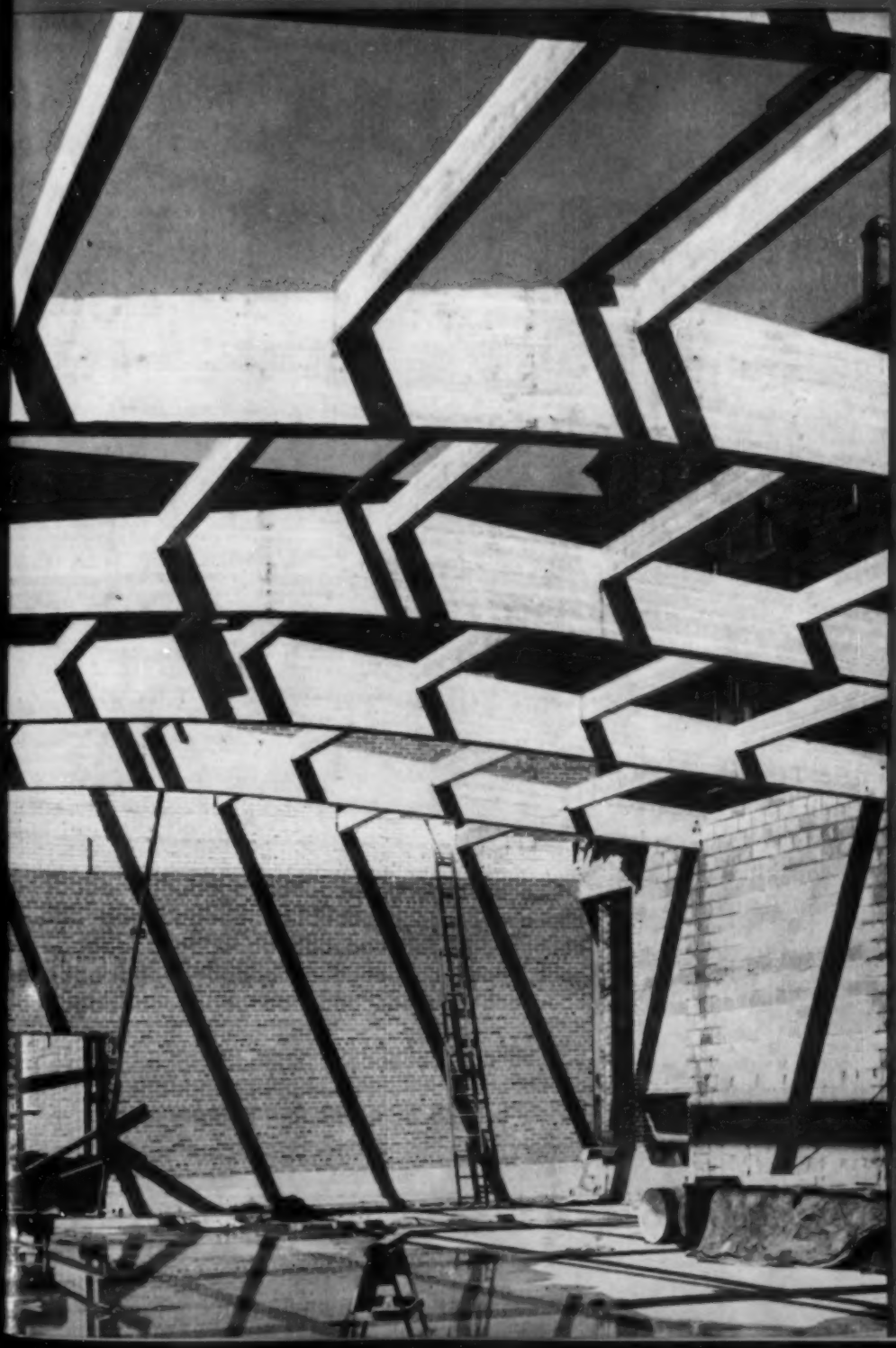
WOOD

Combined With

WOOD PRODUCTS

February, 1952



Harry Grant Uhl

See Page 25—WOOD SALUTES

Modern Gluing

Modern gluing techniques have opened new lumber markets, to prove that research pays.

Practice Proper Saw Maintenance

To start an authoritative story how to maintain saws turn to page 28. Part one of this story covers band saws.

Metalized Wood

Many possible new applications of mechanical bonding of metal to wood are possible. See page 27

See These Features

- Finger Joints Pay
- Saving with the right crating
- Development of Hot Presses
- Check list for gluing
- Woodictionary
- Markets
- Trading Post

A Vance Publication

The National Management and News Magazine of the Forest Products Industry.

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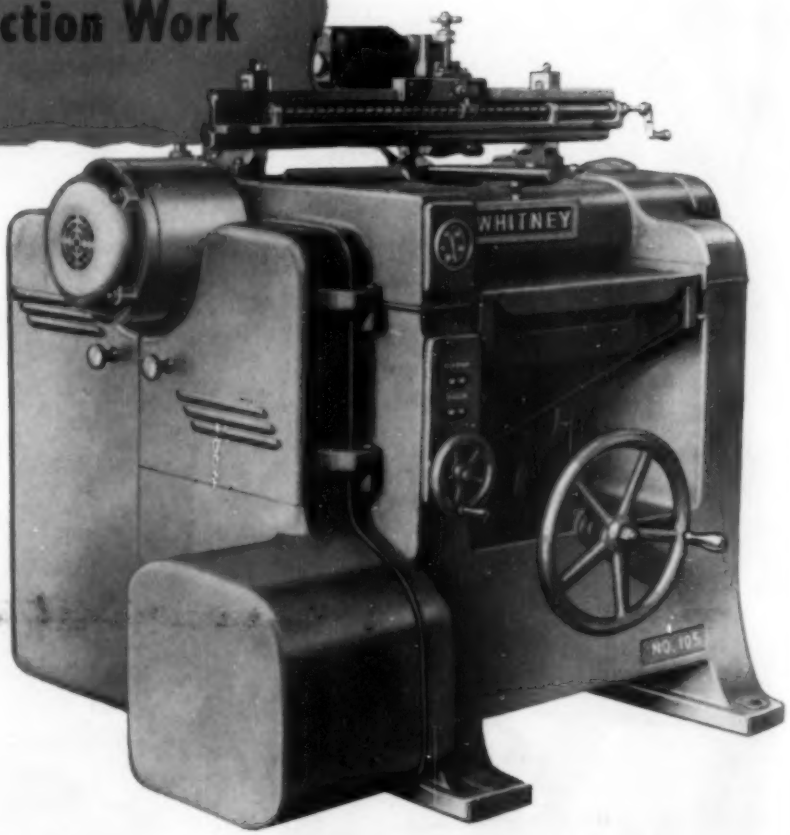
Whitney 105

A Space-saving, Profitable SINGLE SURFACER For Quality Production Work



WHITNEY 105
SINGLE SURFACER

24" wide.
7½ or 10 HP cutterhead motor.
Planes stock 1/16" to 8" thick.
Feeds, 20 to 60 ft. per min.
Micro-feed Selector.
Feed Indicator.
Standard Whitney Knife Grinder.
Finger-tip Controls.
Wedge Raising Bed.

The Whitney 105 Single Planer takes up little floor space (5′ x 5′) and takes less power to operate. Gets out quality work that requires little or no sanding. A dependable surfacer of medium capacity for fine production work.

Frame is sturdy, one-piece casting assuring rigidity. Bed is continuously supported on long incline wedges. Upper and lower wedges are unit castings for accurate and permanent alignment. A sturdy, handy, economical planer for production work or as an auxiliary, for a wide variety of quality surfacing.

Send today for complete details. Ask for bulletin M2.

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PLANERS • SHAPERS • VARIETY SAWS • MORTISERS • BACK KNIFE LATHES

WINCHENDON, MASSACHUSETTS, U. S. A.

WOOD

COMBINED WITH

WOOD PRODUCTS

Volume 57 No. 2

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Overheard at a party: "That's no ashtray. That's my wife!"

• • •

Wolf: "Would you let me hug you, for five cents?"
Girl: "All right."
Wolf: "For a dime could I kiss you?"
Girl: "Go ahead."
Wolf: "Now, are you ready for the two dollar question?"

• • •

She didn't know why they laughed when she said her husband never snored before they were married.

• • •

Pssst—we can get it for you wholesale. That's our specialty.

Just let us know your specific industrial needs, conditions under which the lumber will be used and end uses, too. We'll fill your order with most satisfaction, least waste and best prices.

That's our business—MAUK Lumber Co.

• • •

Getting back to snoring—there was another sweet young thing who didn't know if her husband snored—they'd only been married three days.

• • •

Simple Celia says, though love may make the world go 'round, so does a good stiff bop on the head.

• • •

How do I like my steak? Free.

• • •

Landlady (in hall, talking to a gal): "I thought I saw you taking a gentleman up to your apartment last night, Miss Smythe."

Miss Smythe: "Yeah, that's what I thought too."

MAUK Seattle Lumber Co.
Seattle 5, Washington

The C. A. Mauk Lumber Co.
Toledo, Ohio

Get the solid facts!

See how you save with

CHEVROLET

Advance-Design

TRUCKS

Fact No. 1

PAY LESS AT THE START

Chevrolet trucks list for less than any other trucks built to handle the same payloads. Here is a real, money-in-the-bank savings on purchase price. And you'll find the Chevrolet brings you ruggedness, stamina and great truck features not found in many other trucks.

Fact No. 2

GET LOWER ON-THE-JOB COSTS

Chevrolet trucks give you Valve-in-Head economy that saves gas, four-way engine lubrication that reduces wear and saves oil, and tough, rugged construction for longer truck life. Like truck users everywhere, you'll find Chevrolet trucks cost less to own and maintain.

Fact No. 3

TRUCKS BUILT FOR YOUR PAYLOADS

Chevrolet trucks are *factory-matched* to meet your requirements. You get the right truck for the job . . . never "too much" or "too little" truck. Frame, axles, springs, body, brakes, and power form a *balanced team.*

Fact No. 4

BIGGER TRADE-IN VALUE

Records show that Chevrolet trucks traditionally bring more money at re-sale or trade-in than many other makes. Chevrolet's market value stays up because the value stays *in.* More reason to see your Chevrolet dealer for your best truck buy!

ADVANCE-DESIGN CHEVROLET TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • POWER-JET CARBURETOR—for smooth, quick acceleration response • DIAPHRAGM SPRING CLUTCH—for easy-action engagement • SYNCHRO-MESH TRANSMISSION—for fast, smooth shifting • HYPOID REAR AXLE—for dependability and long life • TORQUE-ACTION BRAKES—on light-duty models • PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES—on medium-duty models • TWIN-ACTION REAR BRAKES—on heavy-duty models • DUAL-SHOE PARKING BRAKE—for greater holding ability on heavy-duty models • CAB SEAT—with double-deck springs for complete riding comfort • VENTI-PANES—for improved cab ventilation • WIDE-BASE WHEELS—for increased tire mileage • BALL-TYPE STEERING—for easier handling • UNIT-DESIGNED BODIES—for greater load protection • ADVANCE-DESIGN STYLING—for increased comfort and modern appearance.

CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN

30 years of plywood experience

Plywood mill, Eugene, Oregon

Plywood mill, Willamina, Oregon

THE manufacturing experience of Associated Plywood Mills dates from 1921—long enough to identify APMI as a pioneer in the development and growth of this important building product.

Plywood plants are located in the heart of the rich Douglas fir region, and warehouse stocks are centered in major population and building areas.

These regional depots carry supplies of quality APMI trademarked plywood for every building need: interior-type, exterior-type, and the sensational new decorative plywood, *Sea Swirl*.

Most important of all, these branch sales warehouses are headquarters for skilled plywood men whose services are always available, and who are as close as your telephone.

Plywood plants at Eugene and Willamina, Oregon. Lumber mill at Roseburg, Oregon.

BRANCH SALES WAREHOUSES:

4268 Utah St., St. Louis, Mo.
4814 Bengal St., Dallas, Texas
4003 Coyle St., Houston, Texas
1026 Jay St., Charlotte, N. C.
111 Welborn St., Greenville, S. C.
925 Toland St., San Francisco, Calif.
Eugene, Oregon

SALES OFFICES:

Boston, Mass.
Los Angeles, Calif.

APMI

Associated Plywood Mills, Inc.

General Offices: Eugene, Oregon

Industry Trends

FURNITURE

Winter Market Outlook

If there was but one word to keynote the basic overall trend in furniture, as indicated by the offerings of the manufacturing exhibitors at the Winter Furniture Market in the American Furniture Mart, Chicago, that one word would be *fashion*. And another word sets the pace for the many new design creations which represent a new high level in interest and value appeal, and the word is *Modern*.

Buyers were amazed to see the wide variety and excellence of design in furniture, and the choice of woods and finishes. Not in recent years have manufacturers offered such a wide choice in new styling—both in woods and fabrics.

Greater attention was given by buyers to the dramatic ultra-sophisticated Modern, although time-honored traditional attracted its share of interest—a goodly portion of which was transferred to order books. On the moderate level, budget-priced, quality-packed contemporary, much of it revamped along cleaner, simpler and quality lines, kept buyers and salesmen busy.

Dealers came to the market knowing exactly what they wanted, but in many cases, were tempted beyond their planned buying by the variety and newness of design and color in dual-purpose furniture that was priced well within the modest budget.

It is generally believed by manufacturers, that with our more expanding defense production, with its attendant need of additional housing, 1952 should be a good year for furniture. Operation will be in a more normal market, and supply may in some areas exceed demand. Competition is expected to be more keen, and prices more competitive. While expected tax increases will tend to lower profit margins, the general feeling is one that might be characterized as conservative optimism—at least for the next few months.

(Continued on page 10)

BRADLEY

HARDWOOD FURNITURE DIMENSION

Solid and Glued · Cut to Size · Run to Detail

Finest Workmanship

BUILDING TRADE REQUIREMENTS

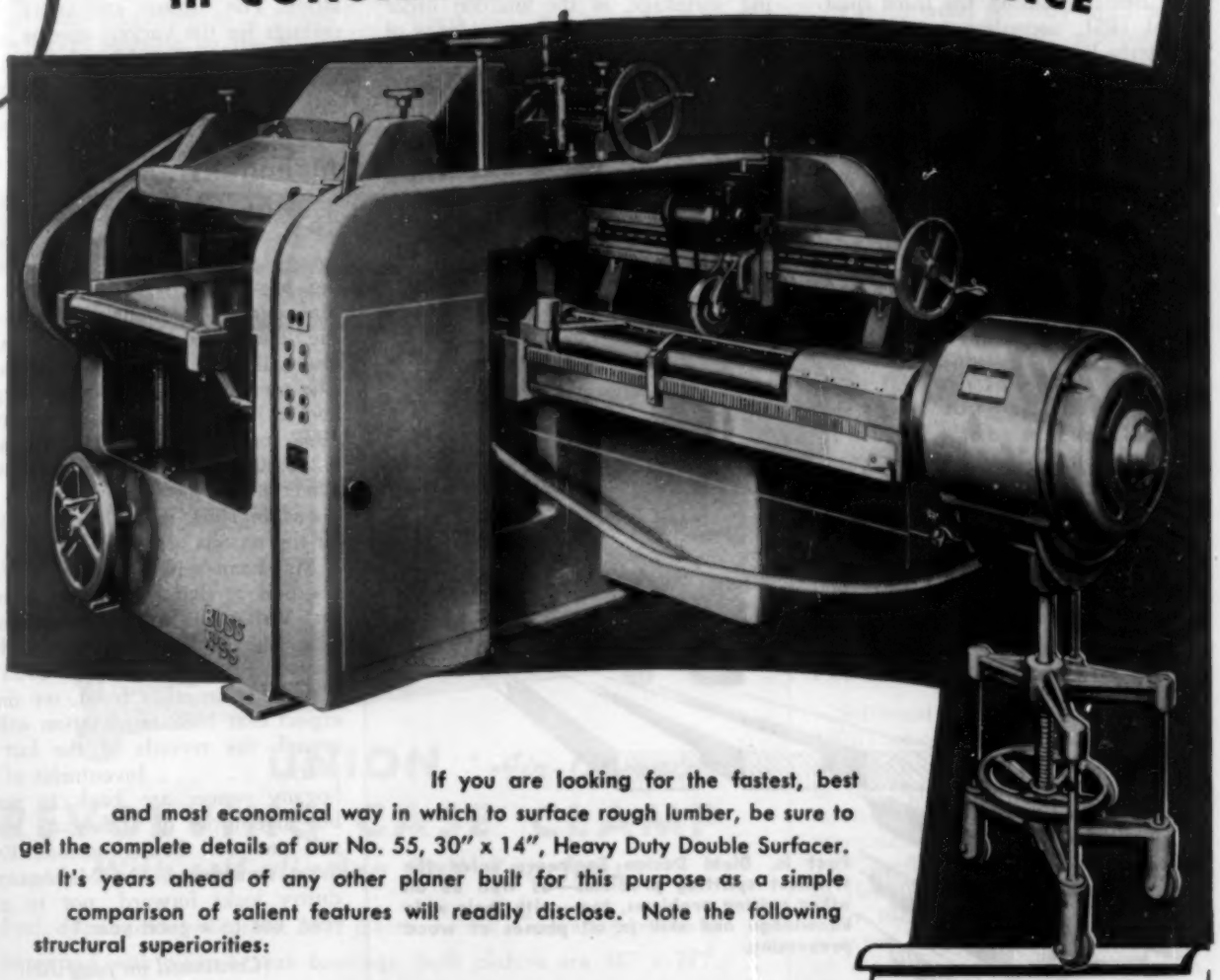
Mixed cars comprising hardwood flooring in Straight-line standard strip and Unit Wood Blocks in oak, beech, pecan; Random Width Oak Plank—each finished or unfinished. Oak stair treads, risers, thresholds. Arkansas Soft Pine trim, mouldings, finish, yard stock.

Call our representative or address:

BRADLEY LUMBER COMPANY *of Arkansas*

WARREN, ARKANSAS

for DOUBLE SURFACING ROUGH LUMBER the BUSS No. 55 is YEARS AHEAD in CONSTRUCTION and PERFORMANCE



If you are looking for the fastest, best and most economical way in which to surface rough lumber, be sure to get the complete details of our No. 55, 30" x 14", Heavy Duty Double Surfacer. It's years ahead of any other planer built for this purpose as a simple comparison of salient features will readily disclose. Note the following structural superiorities:

1. Variable feed — from 30 to 175 ft. per minute. 2. Chromium plated beds and bars — for longer wear. 3. Heavy built-in grinders and jointers. 4. Anti-friction ball and roller bearings throughout. 5. Sectional feed roll and chipbreaker. 6. Large diameter cutterheads with high-speed TUNGSTEN knives for longer wear and smoother finish. 7. Completely motorized with push-button control. 8. Shearing Bar to prevent damage from loose knots. 9. ONE-SHOT lubrication for smooth running and insurance against neglected parts. Write for complete description. Ask for bulletin 55.

FLOORING MILLS and KINDRED PLANTS

No. 55 is also available in 20-inch width with speed stepped up to 275 ft. per minute. This model has proved itself a "bear-cat" for Flooring Mills and similar operations. Let us tell you about it.

BUSS
SINCE 1862
MACHINE WORKS

PLANER SPECIALISTS EXCLUSIVELY

244 EIGHTH STREET
HOLLAND, MICHIGAN

(Continued from page 8)

LUMBER

Production, Prices

Lumber supply continued to exceed demand during the third quarter of 1951, according to the 82nd Quarterly Report of the Lumber Survey Committee to the Secretary of Commerce. Estimated lumber production, while showing a decline in the third quarter contrary to usual seasonal trends, may prove to be a near record output for the first three quarters when final calculations have been made.

It was pointed out that both shipments and new orders were again at levels below lumber production, which resulted in a steady increase in gross mill stocks and a corresponding shrinkage in the unfilled order files at the mills. Further evidence of a softening lumber market could be found in the gradual decline of average wholesale lumber prices during the third quarter and the reluctance on the part of retail yards to purchase more than enough lumber to fill their current needs. Prices in September and October, however, showed some evidence of strengthening.

The uncertainty regarding price regulations is a continuing source of confusion to the lumber industry. Manufacturers are still operating under the General Ceiling Price Regulation. The "dollars and cents" price ceilings for the various species which are being developed by the OPS will probably help in clarifying the situation.

Mahogany

The Mahogany outlook ties up rather closely with the prospects of the furniture industry for 1952, according to George N. Lamb, Secretary-Manager of the Mahogany Association, Inc. The production of television sets also will have an important influence. The men in that industry best qualified to judge the probable volume of 1952 production expect that about 4,250,000 sets will be manufactured. That is not far from what was produced in 1951, as will be seen when all the reports are in.

Mr. Lamb's report states: "We do not believe that the all-over demand for Mahogany will be sufficient to take care of the all-time record importation of Mahogany in 1950 and 1951; on the other hand, we do not expect that 1952 importation will approach the records of the last two years. . . . . Inventories of Mahogany veneer are back to normal but inventories of Mahogany lumber still are well below normal. Everything considered, the Mahogany industry looks forward, not to a big year, but to a good year."

(Continued on page 13)

This Splitter Head is made in any length, up to the width of the machine. With the splitter cutters removed, the round head becomes a standard surfacing head.

No "Splitting" Headaches

Fact is, Diehl Design Engineers solve the trickiest splitting problems—as well as all other cutting problems, too—with their wide knowledge and skill in all phases of wood processing.

For example, Diehl designed this Splitter Head primarily to surface flat stock and cut it into multiples, such as the three square dimensions shown. However, these Splitter Cutters can be made in various forms to produce V or beaded ceiling; for grooving stock, such as drawer sides; or for rounding the corners on casing or like patterns. And, the head shown above can be adapted to efficiently handle these last three operations on small quantity runs. For large quantity, high speed work, special Diehl designed heads, of course, are required. To eliminate your splitting "headaches," write today for full details on Diehl Cutters and Cutterheads.

CUTTER DIVISION

On the Banks of the Wabash

THE G. M. Diehl MACHINE WORKS, INC.

WABASH, INDIANA • U. S. A.

WOODICTIONARY

FILER

One who files saws in a lumber camp or sawmill.

(Continued from page 10)

Western Pine Sets Record

Western Pine production and shipments is expected to establish a new high—exceeding the previous record year of 1950—according to a fourth quarter report released by the Western Pine Association.

Shipments, although well above forecasted totals, will probably be about 7 percent below the unprecedented volume of deliveries made in 1950. Indications are that the region produced 7,724 million and shipped 7,325 million. This inventory increase of about 400 million replaces the 200 million stock reduction in 1950, and provides a margin for the prompt handling of the increased mixed car business which develops under the market conditions of recent months.

Based on all the available information, it seems probable that during the first quarter of 1952 shipments of lumber from the Western Pine region will approximate 1,225 million. This will be about 20 percent less than first-quarter 1951 shipments which were the greatest in the history of the industry.

a UNION machine . . .
TO MEET ANY WOOD GLUING NEED

UNION SERVES OVER 2,000 SATISFIED CUSTOMERS

UNION *Air-Operated*
REVOLVING CASE CLAMP
With self-aligning Ball Bearings

Fast, dependable, accurate. Back platen is fixed. Operating platen is equipped with oilite bronze bearings. Both platens are 48" x 27". Distance between upper and lower rods, 60". Clamping frame is cradled in self-aligning ball bearings . . . may be revolved to any angle or locked in any position.

*May be equipped for hand operation if desired.

•

Union makes equipment for every standard production job in wood gluing. Union also designs and makes machines for special applications — including machines for electronic gluing.

•

Write for data on the complete Union line. Name of Union agent in your territory supplied on request.

•

Write for your free copy, "The How's and Why's of Wood Gluing," by Thomas D. Perry.

UNION TOOL CORP.
312 EAST MARKET STREET, WARSAW, INDIANA, U. S. A.

USERS SAY UNION CUTS COSTS — SPEEDS PRODUCTION

PLYWOOD

Industry needs to know market potential

The plywood industry—with numberless markets for its product—has apparently over estimated its customers' needs. At least at this date inventories are still high at the mills.

Actually, of course, new expansion of facilities in the plywood industry has coincided with a slack market brought about by cutbacks in housing and failure of the government to buy for defense as rapidly as expected.

As a matter of fact, you cannot sell plywood you don't have. To meet demand for its product, production was increased by more than a third between 1949 and 1950 alone. Now that new plants have resulted in excess plywood, it can be expected that industry salesmen will find markets for their product.

The recent stiffening of Douglas fir plywood prices—with sales running 50 percent over production—indicates that the market has already hit bottom and is on the way up.

Production for 1950

Softwood plywood production for 1950 amounted to 2,676 million square feet, according to the Bureau of the Census, Department of Commerce. This represents an increase of approximately 35 percent over the 1,977 million square feet produced in 1949, the previous peak year.

In 1950, there were 73 softwood plywood mills in operation. The State of Washington had 32 mills, Oregon 28, and California 13. Washington is the leading producing State, with an output of 1,296 million square feet or 48 percent of the 1950 total. It is followed by Oregon with 1,088 million square feet (41 percent), and California, 292 million square feet (11 percent).

Alaska Saw Logs

Extend Exemption From Price Control

On December 31, 1951, the Office of Price Stabilization extended for three months—until March 31, 1952—the temporary exemption from price control of saw logs produced and used in Alaska. The suspension is authorized in Amendment 1 to Supplemen-

(Continued on page 67)

Step on it for more production

PORTER 43-20J Automatic Hydracut Saw

Foot Pedal Control Ends Operator Fatigue

The Porter 43-20J Automatic Hydracut Saw saves hours of labor . . . enables any cutting room operator, regardless of age, to cut more lumber per day by eliminating tiring hand operation. Operator simply positions the lumber against the adjustable cut-off stops . . . and presses the electrically operated foot control. The saw blade, mounted on a hydraulically operated carriage, *automatically* moves forward to make the cut and *automatically* returns. Fatigue from manual "push-pull" operation is gone.

Stroke length is quickly adjusted by a convenient lever. Cutting speeds range from 0 to 45 cuts per minute.

The new Porter Bulletin 43-20J-1 fully explains the Automatic Hydracut Saw. Send for your copy today.

Dividend Designed by **PORTER**

C. O. PORTER MACHINERY CO.
660 Front St., N. W. Grand Rapids Michigan, Michigan

NELSONIZE
TO STABILIZE

THE IMPROVED WAY TO TREAT WOOD PRODUCTS

STOP WARPING

Nelsonized Wood resists warping when exposed to high humidity.

STOP SWELLING

Nelsonizing retards moisture pick-up. No more swollen drawers that can't be opened!

STOP STICKING

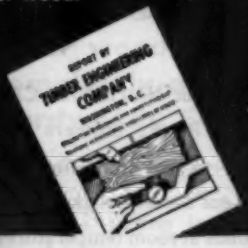
Nelsonizing's high anti-shrink efficiency means cabinet doors shut easily and stay shut!

Nelsonized-treated ponderosa pine, red oak and sap gum resisted swelling and shrinking in rigidly controlled humidity cabinet and outdoor weather tests better than untreated woods or woods treated with competitive products.

Tested Nelsonite chemical formulae are *proved* highly effective in the *dimensional stabilization* of wood products for indoor or outdoor end use.

Nelsonite has been laboratory tested and approved by Timber Engineering Co. (report sent on request), and is recognized by National Hardwood Lumber Manufacturers Association, Southern Furniture Manufacturers Association, and the Wood Office Furniture Institute. Nelsonite meets basic U.S. Government specifications on wood stabilizers and preservatives.

There is a Nelsonite formula specially compounded to attain the specific results desired on any wood or for any end use of wood.



"NELSONITE GAVE BETTER RESULTS IN CONTROLLING SWELL AND SHRINK Than Competitive Products!"

Report of Independent Laboratory Test

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Gentlemen:

We are interested in Nelsonizing the following wood and wood product

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Please send us sample to meet our individual specifications, at no charge.

Company_____

Address_____

City_____ Zone____ State_____

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MARKETS

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of December 8, 1951. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on hand-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE	FAS	No. 1C	No. 2C
4/4-in.	155	108	62
6/4-in.	168	120	65
8/4-in.	180	140	70
BASSWOOD			
4/4-in.	165	130	80
6/4-in.	170	135	87
8/4-in.	180	145	90
BEECH			
4/4-in.	125	100	62
6/4-in.	150	112	67
8/4-in.	167	127	72

CHERRY			
Same as Appalachian			
RED GUM—PLAIN			
4/4-in.	200	150	70
6/4-in.	230	170	75
RED GUM—QUARTERED			
4/4-in.	225	175	75
6/4-in.	250	200	90
8/4-in.	260	210	95

SAP GUM—PLAIN	FAS	No. 1C	No. 2C
4/4-in.	110	92	47
6/4-in.	150	130	
8/4-in.	160	140	
HACKBERRY			
4/4-in.	112	92	67
6/4-in.	132	110	77
8/4-in.	137	112	77
HICKORY			
Temporary suspended			
MAGNOLIA			
4/4-in.	170	135	70
6/4-in.	185	143	84
8/4-in.	205	150	87
SOFT MAPLE—WHAD			
4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80
SOFT MAPLE—WHND			
4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80
RED OAK—PLAIN			
4/4-in.	130	105	62
6/4-in.	190	135	
8/4-in.	200	140	
WHITE OAK—PLAIN			
4/4-in.	185	115	63
6/4-in.	195	140	
8/4-in.	205	145	

PECAN	FAS	No. 1C	No. 2C
4/4-in.	114	94	48
6/4-in.	130	110	66
8/4-in.	155	130	70
POPLAR—PLAIN			**No. 2A**
4/4-in.	170	130	75
6/4-in.	185	140	87
8/4-in.	205	150	90
SYCAMORE—PLAIN			**No. 2C**
4/4-in.	117	97	60
6/4-in.	125	105	60
TUPELO—PLAIN			
TUF TEXTURE—DEEP SWAMP			
4/4-in.	110	92	47
6/4-in.	155	135	
8/4-in.	160	140	
WILLOW			
4/4-in.	142	120	60
6/4-in.	142	122	67
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of hand-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried, & graded in accordance with

Here's the Right Glue for These Important Glue Jobs:

- ★ For exterior plywood, National's P-100 Phenol glue.
- ★ For interior plywoods, #750, #600 liquid urea or DR powdered resin.
- ★ For machine edge gluing, #750 liquid resin, with selected catalyst. Hand work: a wide variety of casein glues or DR powdered resin glue. Also National's #5000 for fast setting.
- ★ For decorative plastics: #8846, #9, or #30 casein glues. Also DR powdered resin glue.
- ★ For chipboard manufacture, #750 and #600 liquid resin; P-100 phenol glue.
- ★ For glues to pass all government specifications . . . for laminating hard boards, veneer splicing, laminated rafters, etc., contact office nearest you.

ASK your NATIONAL CASEIN man about Casie's and Resie's brothers and sisters—"Phenie"—that's phenol glues for exterior plywood; "Sorcie"—our resorcinol glue for waterproof, weatherproof bonds at room temperatures; "Viney,"—a vinyl formula for assembly work; "Urie"—urea glue for furniture and cabinet work; and "Fortie"—a dependable glue for gap filling.

If you aren't satisfied with the performance of adhesives you're now using, tell us about your glue job and we'll recommend a glue to do it—RIGHT!

National Casein

601 West 80th St., Chicago 20, Ill. • Broad and Fulton Sts., Riverton, N. J.

NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

TOUGH ASH	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH				No.2C
4/4-in.	145	135	110	75
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH				
4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE				
4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY				
4/4-in.	200	190	135	80
6/4-in.	235	225	160	85
8/4-in.	250	240	170	90

CHESTNUT				
4/4-in.	165	...	115	62
6/4-in.	170	...	120	64
8/4-in.	175	...	125	65

HICKORY				
4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	165	155	90	60

HARD MAPLE				
4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE				
4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	73

RED OAK—PLAIN	FAS	FIF	No. 1C	No. 2C
4/4-in.	185	175	120	
6/4-in.	200	190	135	
8/4-in.	215	205	145	

WHITE OAK—PLAIN				
4/4-in.	200	190	125	
6/4-in.	220	210	145	
8/4-in.	225	215	155	

WHITE OAK—WIND				
4/4-in.	115	105	85	..
6/4-in.	140	130	110	..
8/4-in.	150	140	115	..

YELLOW POPLAR—PLAIN				No. 2A
4/4-in.	210	200	140	85
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED	FAS 6" & up	FIF 6" & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH	FAS	No. 1C	No. 2C
4/4-in.	145	105	75
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD			
4/4-in.	130	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH			
4/4-in.	145	100	68
6/4-in	160	115	78
8/4-in.	165	120	80

BIRCH			
4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM			
4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM			
4/4-in.	135	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE			
4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82

SOFT MAPLE			
4/4-in.	155	120	72
6/4-in.	170	130	83
8/4-in.	185	140	90

RED OAK			
4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	86

* Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

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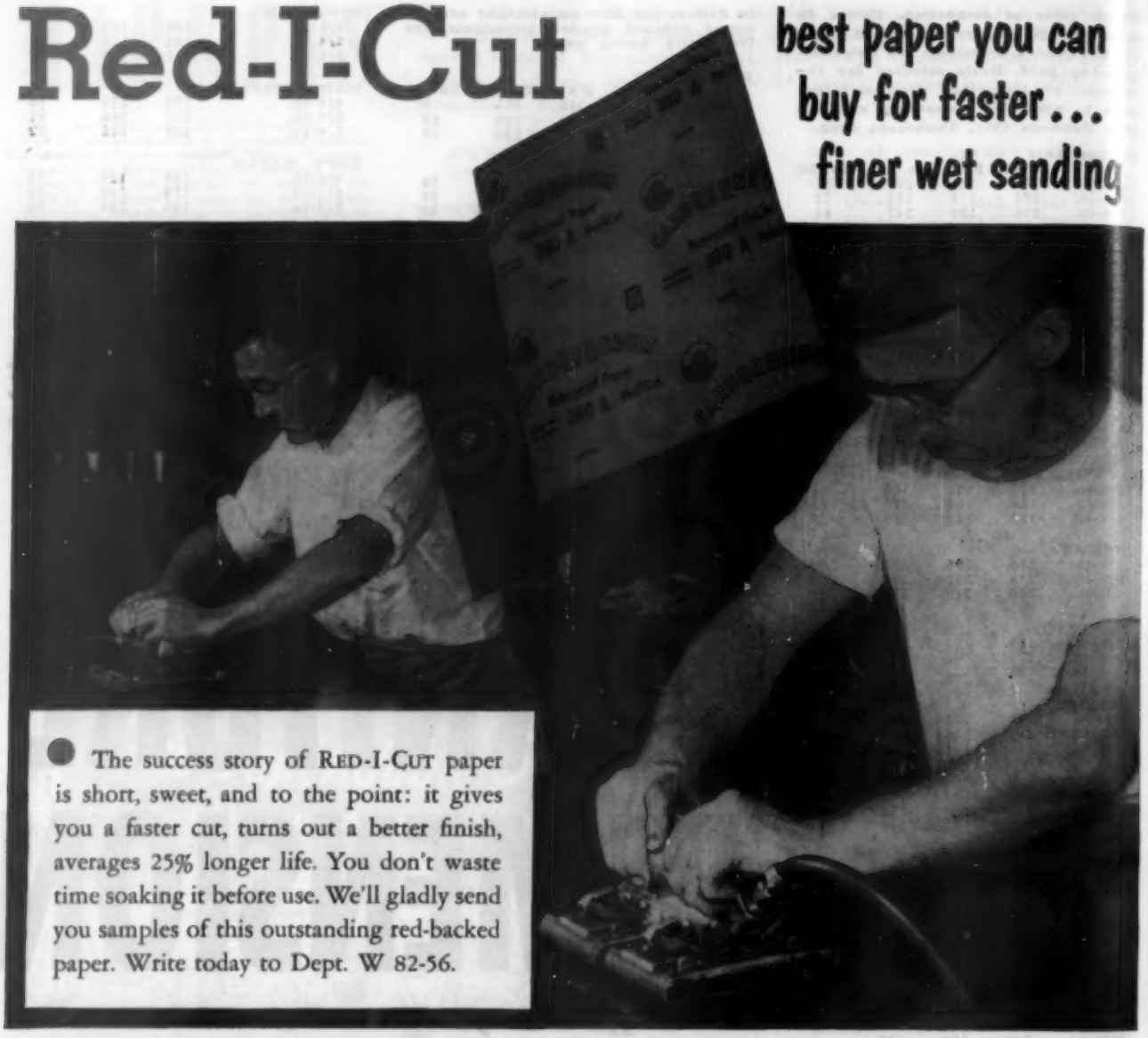

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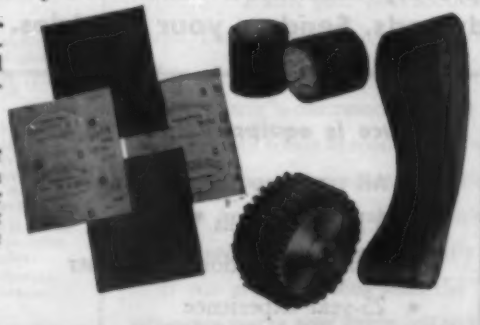

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Names... Events

Deaths

HAROLD M. SERVISS, President, Marion Handle & Box Co., Marion, Ind., for many years, died December 20, 1951.

Retirements

JOHN M. MCCLURE, Secretary-Manager of the National Hardwood Lumber Association, Chicago, Ill., retired from active service with the 55 year old Association effective January 1, 1952. Mr. McClure has been designated as President Emeritus by the directors and will act in a consultant

J. W. McClure

capacity for the Association from his home in Memphis, Tenn. In the August 1951 issue, we profiled Mr. McClure in the WOOD SALUTES column in recognition of his many years of service and his great contributions of energy and experience in the forest products industry.

C. AUDREY RICHARDS, in charge of the Forest Pathology branch of the Bureau of Plant Industry located at the Forest Products Laboratory, is retiring after 34 years of service.

OSCAR W. TORGESON, well known in the lumber industry for his numerous publications on kiln design and other phases of wood seasoning, has retired from the staff of the U. S. Forest Products Laboratory after more than 37 years of Government service.

FRANK W. SMITH, Vice-President in charge of the Grinding Machine Division of the Norton Co., Worcester, Mass., retires from active service. He will be retained by the company as a consultant responsible for the construction of the company's new six million dollar machine division expansion.

Promotions

JOSEPH L. MULLER, who has held the position of Assistant Secretary of the National Hardwood Lumber Association, Chicago, Ill., has been advanced to the office of Acting Secretary-Manager, Succeeding JOHN M. MCCLURE who retired from active management January 1, 1952.

JOHN R. DOXEY, former Vice-President of Standard Wood Preservers, Inc., Shreveport, La., was elected President of the corporation.

ROBERT W. LYONS, formerly Assistant Vice-President of Kimberly-Clark Corp., Neenah, Wis. in charge of woodland operations, has been elevated to Vice-President, and C. G. COSENS, Toronto, Canada, in charge

(Continued on page 23)

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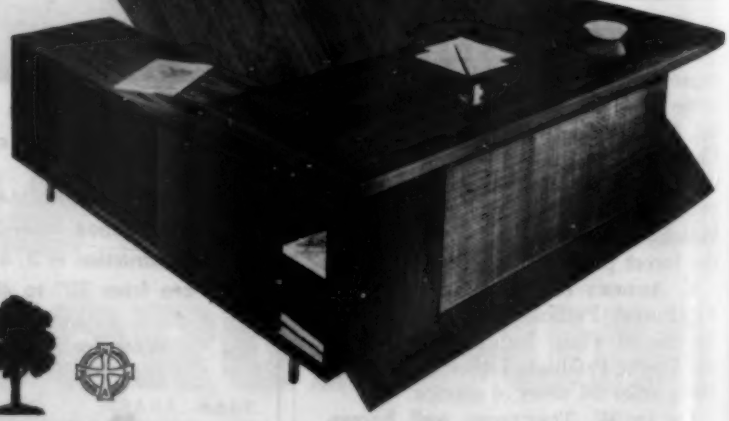

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NAMES . . . EVENTS

(Continued from page 21)

of related woods operations in Canada, will assume the position of General Manager of all woods operations.

C. JOHN SUNDBERG was appointed Assistant to the Vice-President in charge of sales for the Abrasive Division, and STEPHEN SMITH was named supervisor of the Worcester, Mass. sales office of the Norton Co.

ALFRED J. FAVA has been named Sales Director of the General Products Division, and J. J. CRANMORE as Sales Manager of the Lowerstor Department of the General Products Division of the American Machine & Foundry Co., New York, N. Y.

CARL J. RIDDERING has been named a member of the Board of Directors of the American Seating Co., Grand Rapids, Mich., succeeding WELLMORE B. TURNER, Dayton, Ohio, who retired.

New Jobs

KENNETH C. COMPTON, Columbia, Mo., has been appointed Assistant Professor of Forest Utilization at State University College of Forestry, Syracuse, N. Y.

RALPH M. LINDGREN of the Bureau of Plant Industry is named Pathologist in charge of its wood deterioration studies at the Forest Products Laboratory, Madison, Wis. ARTHUR F. VERRALL is placed in charge of wood deterioration studies at the Southeastern Forest Experiment Station at Gulfport, Miss.

GEORGE H. RODERICK, Vice-President in charge of manufacturing for the American Seating Co., Grand Rapids, Mich., was elected President of the Grand Rapids Chamber of Commerce.

F. W. VAN HORN has been appointed Manager of Plywood Sales, Western Forest Products Division, Pacific Mutual Door Co., with general offices in Tacoma, Wash.

HAROLD B. STUART and WILLIAM P. HOFFMAN have been appointed field sales representatives for Furniture by Tomlinson for the Pacific Coast north of and including the San Francisco trading area.

JOHN R. CALKINS has been named Lake States Manager of American Forest Products Industries, with headquarters in the Socony-Vacuum Building, Chicago 5, Ill.

Expansions

STANLEY PREBLE is appointed Manager of a new Northern California Sales Office of Clay Brown & Co., Inc., of Portland, Ore. The new office will be located in the Russ Building, 235 Montgomery St., San Francisco 4, Cal.

A new research laboratory has been started by the BORDEN COMPANY'S Chemical Division in Philadelphia, Pa.

(Continued on page 62)

WOODICTIONARY

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Timber that has grown after the removal of all or a large portion of the previous stand.

INCREASE PRODUCTION as much as 100%

Lift Installed at	Production Increase
Double Surfacers	40% to 75%
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HARRY GRANT UHL

G. E. KARLEN

ARMIN ELMENDORF

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industries.

Harry Grant Uhl

Harry Grant Uhl was born in Marion, Ohio, on December 9, 1896, and graduated from the College of Wooster in 1920. He joined the staff of the National Lumber Manufacturers Association in October, 1920, as an assistant to the manager on governmental relations and traffic matters. After serving as secretary of the Central Committee on Lumber Standards from 1924 to 1927, he became assistant secretary of NLMA in charge of administrative work at the time the National Lumber Trade Extension Campaign got under way. During 1931 he was engaged in developing sales and collections for the National Lumber Manufacturers Credit Corporation.

He was elected secretary of American Forest Products Industries, Inc., when it was formed in 1932, as an affiliate of NLMA, and served in that capacity through 1935.

At the inception of the Timber Engineering Company in 1933, he was appointed secretary of the corporation, was promoted to vice president and secretary the following year, and was elected president at the annual meeting in 1944, in which capacity he still serves the industry.

In the administration of the affairs of the Timber Engineering Company, Mr. Uhl was able to bring to bear

(Continued on page 86)

G. E. Karlen

G. E. (Fred) Karlen has been intimately associated with the lumber industry for nearly 40 years, having begun his career in Minnesota in the heydey of white pine in that state. Today, although Karlen's varied interests are centered on the West Coast, he has become a nationally known industry figure.

Karlen's first job in the lumber business was with the Red River Lumber Company at Akeley, Minn. Thereafter, he worked varying periods for the Virginia-Rainy Lake Lumber Company at Virginia, Minn.; the International Lumber Company at International Falls; and the Shevlin-Clark Lumber Company at Fort Francis, Ontario.

In 1915, Karlen went west to become associated with the St. Paul and Tacoma Lumber Company, where he remained until serving in the army in World War I.

After discharge, Karlen joined the J. E. Morris Lumber Company in Seattle, and later became associated with the Schwager-Karlen Lumber Company. In 1928, he started the Karlen-Davis Company. From 1941 to 1943, Karlen operated the Eatonville Lumber Company for the Federal Reserve Bank. In 1943, with several associates, Karlen acquired title to this property.

(Continued on page 81)

Armin Elmendorf

Armin Elmendorf, president of the Elmendorf Research, Inc., and Elmendorf Corp., both of Chicago, is one of the nation's pioneer leaders in wood research.

Elmendorf has long been associated with the forest products industry as a research engineer and consultant, and lists among his clients many of the major producers of lumber, plywood and wall board in the U. S. He has served as Engineer in Forest Products in charge of the Plywood Division at the U. S. Forest Products Laboratory during World War I, and as consultant to the War Production Board during World War II.

Other Government agencies have also sought his advice. He has presented many technical papers before engineering societies such as the Forest Products Research Society, American Society of Mechanical Engineers and the American Society for Testing Materials. The following products sold on a national scale were invented and developed by Elmendorf. The development of these products included the design and perfection of all special machinery required for their manufacture.

The Elmendorf Paper Tearing Tester—Standard instrument of the paper industry for measuring the tearing strength of paper.

(Continued on page 86)

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Light, but exceptionally strong, with fine texture and beautiful ribbon grain, Philippine Mahogany is especially well suited for the clean lineal design of modern furniture.

The ability of this fine tropical hardwood to take a wide variety of finishes is of basic importance to the furniture manufacturer. Individual pieces or groups can be finished to meet the demands of the buying public for blond, grey, light, dark, or reddish brown.

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PHILIPPINE LUMBER PRODUCERS' ASSOCIATION, MANILA

"METALIZING" of wood depends on mechanical adhesion. Simplicity of process suggests many uses.

Here's How to Apply Metal Coating to Your Wood

Ease with which many woods can be "metallized" and comparative economy of operation suggests numerous applications. Paul H. Graham reports.

Proper woods when sprayed with metal coating can do effective job while conserving metal.

The casket industry did not take advantage of "metallizing" until World War II when metals, as critical war materials, were in short supply.

Metallizing experts agree that such woods as cypress, birch, gum, mahogany, oak, redwood or walnut are best for metallizing. Such woods as pine and other woods of a resinous nature tend to sweat at high temperatures, but can be metallized.

Mechanical Adhesion

Unlike the standard finishing materials used in wooden casket finishes, metallized finish is bonded by pure mechanical adhesion. This requires a rough surface which can be entered by the molten metal.

Metallizing alloys are usually rated on deposit efficiency and those suitable for wood, based upon order of deposit efficiency, are: aluminum, copper, monel, steel, brass, bronze, cadmium, tin, zinc, and lead. Low melting point alloys like lead, tin and zinc, are used for the primer coat. Zinc is generally preferred.

Metallizing or wire guns are used to apply a metallized coating much the same as a standard spray gun. The mechanics of the gun is somewhat different. Alloy wire is fed at a fast, constant feed to a combustion chamber at the nozzle into a flame or an electric heating element where the wire is reduced to molten metal. Compressed air is used in the gun, about 20 cubic feet per minute at approximately 50 lbs. pressure, to atomize and spray the metal as fast as it is melted onto the wood surface to build up the metallized film in a fine texture coating which is very dense and contains a very small percentage of oxide as it is projected upon the surface at a rate of about 30,000 feet per minute. Atomization of the molten metal is performed with pressures of from 8 to 24 lbs.

Sealed Against Moisture

The metallized coating provides a smooth metal film which seals the wood permanently against moisture and highly resistant to any deterioration in contact with the soil.

The cheaper lines of caskets are often sprayed with a low melting metal, such as zinc smoothed by wire brushing and buffing, coated with lacquer and polished. The better cases, however, are sprayed with a zinc or lead primer coat and then receive a top coat of copper, bronze or some other high melting metal, oxidized or finished with some standard metal casket finish, lacquered and polished.

Following the assembly and general clean-up of a birch case, it is steel-wooled with a portable sander equipped with steel wool pads.

Prime Coat Used

A primer coat of zinc is applied with the wire gun. The thickness of the metallized primer film is just about enough to produce a metal shell that can be handled safely.

This primer coat cools and sets up very rapidly. A top coat of copper is then applied to an approximate thickness of .025-inch to amalgamate with the zinc primer coat.

All high spots are then removed with a portable grinder. The entire surface of the casket is then smoothed level.

Since the interior will be upholstered, only the exposed edges are metallized but the balance of the inside surface is sprayed with a primer for protection against moisture.

A two-color spray gun is often used for the top coat, which sprays two colors at the same time through a single nozzle, to produce a finish pattern which gives the appearance of considerable depth.

This is allowed to air-dry for about 15 minutes and then a light sealer lacquer coat is applied. This is dried thoroughly and wet-sanded with 280 paper. Two full coats of clear buffing lacquer are then applied with a drying period in between coats. Both coats are dried in a force-drying oven and a third coat is sometimes applied if more body is required.

Savings Possible

When the last top coat has dried and cooled thoroughly, the finish irregularities are cut down by wet sanding with 400 paper. The surface is rubbed smooth with rubbing compound, cleaned up, and polished.

It would seem that there should be many applications possible for metallizing on wood as the mechanics of the process are relatively simple and the equipment required is not too expensive in view of the results obtained and the ultimate savings possible.

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Give Your Man the Right Equipment

How to get the most economical service from your saws is discussed in the series starting on this page. This month the author looks in detail into the subject of band saws. Next month he will give similar detailed facts on circular saws.

by PAUL H. GRAHAM

The chief function of any saw maintenance department is to service and maintain all saws in proper condition to give top performance on production machines and to provide them with the longest possible efficient working life. While the equipment required to do this is necessarily governed by the type and extent of saw maintenance required as well as the amount of capital investment involved, it is important that it be selected with precision and accuracy.

Of equal importance is the location of the department with regards to the production department it services and the position of the equipment within the saw maintenance department. In many plants this department is located as closely as possible to the cutting machines it services.

A factor of utmost importance to successful saw fitting that is most often overlooked in locating this department is vibration. If the saw maintenance department is located close to and/or on the same floor foundation that supports the production machines, its vibration in operation is bound to destroy or impair the fitting efficiency of the saw maintenance equipment. This condition may be remedied by locating the saw maintenance department in a separate building, mounting the equipment upon vibration-deadening foundation material, or providing float foundations for precision maintenance machines.

Equipment layout is somewhat limited by the kind of saw maintenance performed and the type of equipment used. It is usually possible to arrange the equipment to not only perform the operations in their normal sequence but also to carry on several operations at the same time with the use of automatic machines.

Power is also another important consideration, including both source and kind of power transmission. The saw maintenance department is an emergency service organization which should be provided with a separate source of power.

Within this department many plants feel they must equip each machine with a separate electric motor. This is not always necessary or advisable as many of the machines are so correlated in function that the group drive will prove a more practical and economical means of power transmission. It is also important that speed changers, speed reducers, or some other means of providing variable speed drives be afforded to those machines, such as automatic grinding machines, which are required to operate at different speeds to meet various conditions.

AUTOMATIC band saw sharpener used to grind log band saws.

SAW SHARPENER should be placed to permit excellent working conditions to achieve best results.

Band saws naturally divide themselves into three general classes: narrow scroll band saws, ranging from 1/8-in. to 2 in. wide; wider band resaws or rip saws, ranging from 2 to 8 in. wide; log band or head saws, ranging from 7 to 16 in. wide. These various band saws will range in length from 6 to 60 ft., according to application, and will vary in thickness from 25 gauge to 11 gauge.

It is generally conceded it is impossible to keep fine-tooth scroll band saws accurately fitted by hand and it is definitely not practical to fit wider band saws in this manner. Automatic saw fitting equipment should be used wherever possible and hand work should be confined to benching and touch-up operations after general fitting has been done by machine. Standard operations usually included in general band saw fitting procedure consists of setting or swaging, sharpening, shaping, tensioning, and brazing or welding.

Band saw fitting equipment used varies generally with the size and type of saw being fitted. A well-equipped saw maintenance department usually operates with such tools and equipment as: an automatic setting machine and/or an automatic power swage and/or various hand swages, an automatic band saw filing machine and/or an automatic bandsaw grinder —equipped with proper files or grinding wheels, grinding wheel dressers, a stretcher roll or roller stretcher—sometimes equipped with a retoother attachment, a side file dresser or swage shaper, a lap grinder or scarfing machine, band saw shears, a brazing or welding unit—with forge, torch, brazing clamps and tongs or irons or welding clamps, swaging and jointing clamps, a jointer, a saw anvil, a variety of saw hammers, straight edges, back gauges, tension gauge, leveling table and/or leveling blocks, rolls, pulley supports, fitting-up wheels and stands, filing clamps or vises, and a wide variety of files for touch-up work.

Good saw fitting practice requires narrow band saws to be set before they are filed. Modern band saw setting machines do the setting job in a few minutes.

Automatic Setting

These band saw setting machines are either hand-operated or power-driven and are automatic in operation. All operate to hold the band saw securely and set the teeth alternately without straining the blade in one trip through the machine to produce the proper spread on each tooth for required clearance and clean cutting.

There are many types of automatic band saw filing machines, ranging from bench machines to floor pedestal types, which operate with the saw passing through the machine either vertically or horizontally. All have just three adjustments: feeding, clamping and filing. The file is held by a filing arm arranged to swing into the throat at a predetermined angle of hook and is drawn across the teeth with an elliptical stroke to file them in the direction they are set.

Some plants prefer to use the combination-type automatic filing and setting machine which accurately sets the teeth and then files each tooth with the same point and pitch as the feed fingers automatically move the saw through the machine. These units serve as both filer and jointer to produce uniform teeth.

Making laps or scarfing the end of a band saw for brazing can be done with a fine mill file by hand but lap grinders or automatic machine scarfers are more practical and much faster. In the conventional brazing method a brazing clamp is required to hold the saw and a forge is used to heat the brazing irons or tongs. A gasoline torch is commonly used to melt the solder.

The electric band saw brazer eliminates excessive handling as it serves to both clamp and heat the joint. Universal adjustments are provided with the electric brazing clamp to allow proper lining up of the center clamp with the side clamps. Butt welders are also used where there are a large number of band saws to service incorporating saw blade clamps for positive line-up of the blade ends and full electrical contact. Saw guides are also provided which function in connection with clamps so adjusted that the teeth are outside the clamp.

Acetylene welding is also used on band saws. A flexible shaft grinder is used to clean and finish the weld. Flash welding is also a popular meth-

(Continued on page 53)

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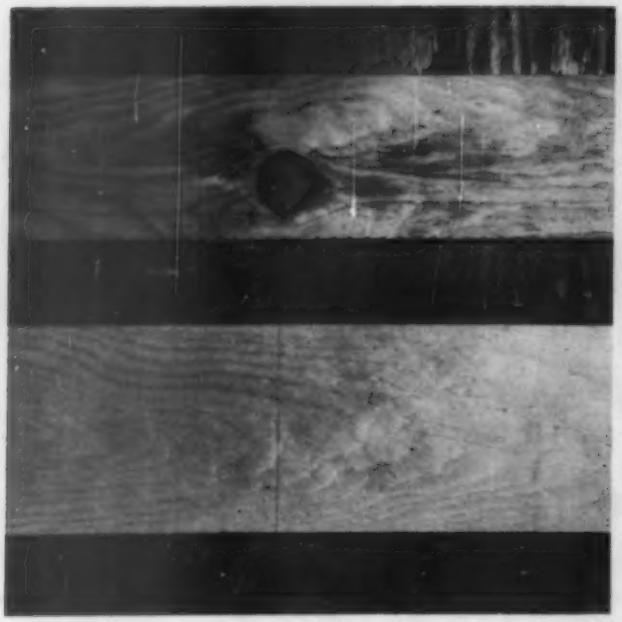
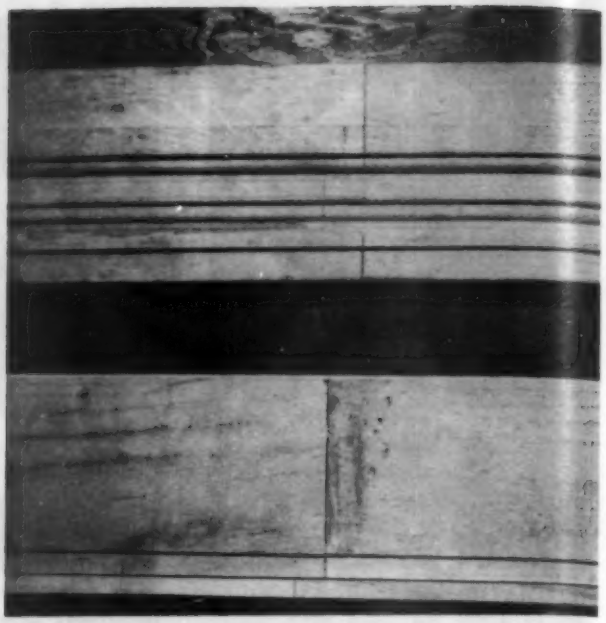
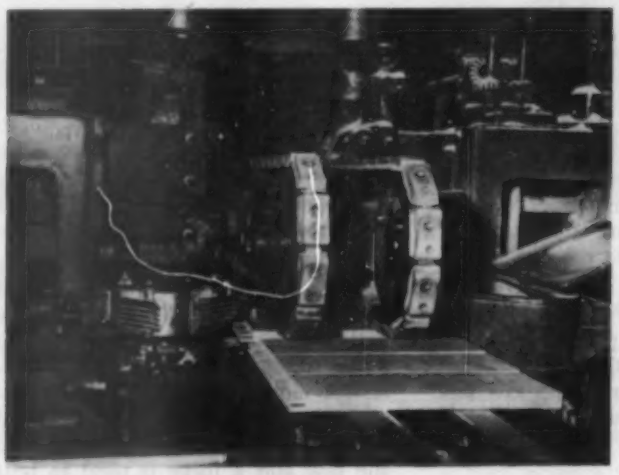


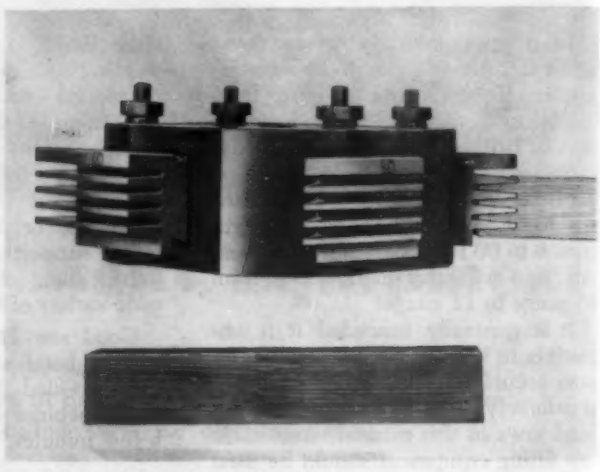
GOOD LUMBER comes from waste.....



EVEN MOULDINGS look perfect.....



PRODUCTION MACHINES like this.....



PROPER CUTTING tools, too.....

How Finger Jointing Can Help You

Read the practical answers to five vital questions about finger jointing, and how this operation can help cut costs and conserve materials. By C. C. Chekouras of the Yates-American.

Finger joints as a means of conserving valuable materials and hence cutting costs—is rapidly becoming a vital problem to many producers and users of wood.

This article presents practical answers to the five following questions about finger jointing.

1-Why use finger-jointed stock? 2-Is finger-jointed stock accepted by the trade? 3-Can finger-jointed stock be used in "our" product? 4-In what length pieces is finger-jointed stock economical? 5-Is the tooling for finger-jointing expensive?

Finger-jointing permits the use of materials which would ordinarily be disqualified because of spot imperfections and inadequate stock length. Imagine a piece of eight quarter square stock with an inch and a half knot through the center of a 16 foot long piece. This definitely cannot be used as a 16 foot piece of stock in whatever type moulding you may manufacture. If you could, by some magic remove the knot, you would then have a piece of stock not quite 16 feet long but of a higher grade. If this piece of stock were to be cut so that the knot is removed and a finger-joint used in its place, you would then have a piece of select material that for many applications would prove to be as good as solid stock. The practicality

of finger-jointing has been proved in laboratory tests, where it has been demonstrated that finger jointed stock is no less strong than a solid piece of material.

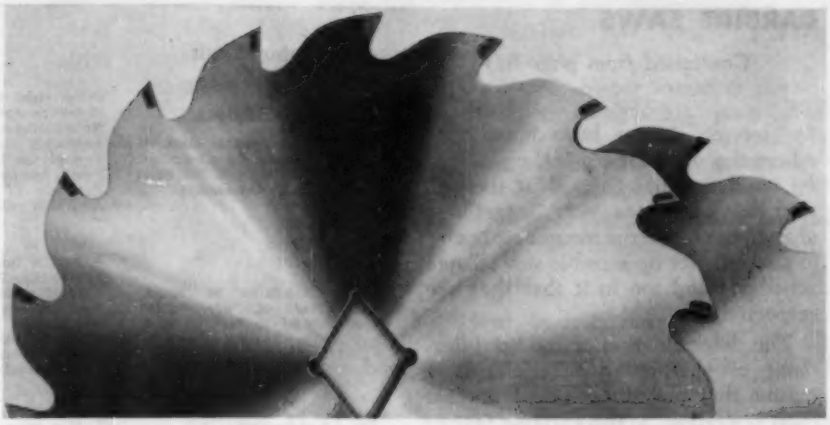
During World War II many manufacturers decided to use finger-jointed stock primarily for conservation of material because of the stock shortage. At that time many companies found that this practice not only conserved valuable material but also saved on material costs by eliminating knots, thus up-grading stock. Although many of the companies neglected the use of finger-jointed material as stock grew more plentiful, some companies stayed with it and studied all factors until they satisfied themselves and their trade that finger-joints are successful and practical. In some instances, the companies have gaur-anteed their product made with finger-jointed parts.

To evaluate the use of finger-jointed parts in your own product, you must bear in mind these points. For strength, the finger-jointed stock has proved equal to solid stock providing a proper joint is cut and the correct glue is used. Finger-jointing does not detract from the appearance of the finished product, presents no painting difficulties, and may actually enhance the appearance of stained or varnished stock. A furniture dimension plant could apply finger joints for such things as back chair legs, desk legs, table aprons, even the back legs on the high quality case goods. A sash and door plant could use finger jointed material on practically every one of its parts except panels and portions that would later be mortised for a lock. Moulding plants could use finger-jointed stock in any of the heavier mouldings. Casket manufacturers could very well use the finger-jointed stock in many of the longer parts of their product.

Few Joints

The length of the finger-jointed parts could only be determined by their application. It would certainly be sensible to use as few finger-joints as required to utilize your material. If you are making a check rail sash, it would not be practical for the check rail itself to have two or three finger-joints in it, because the saving of stock is so small that it would not prove valuable. If the check rail is to be made from a 26" finished length piece of stock this could be made up with one finger-joint in two pieces approximately 14" each or one piece 10" long and another 17" or 18" long. Using a

(Continued on page 58)



Comparative Operating Costs of Carbide Tipped Saws

Part 3

This paper, presented at the November A.S.M.E. meeting in Atlantic City, gives some hard facts on carbide operation which merit real consideration.

by C. E. DRAKE
Drake Corporation

IN BRIEF: In the preceding two parts of this article, we pointed out that carbide tipped tool costs can only be considered on the basis of production units or machine running time per sharpening. We touched on the major aspects of maintenance, as well describing details of leasing plans for carbide saws. Part One, in the December Wood and Wood Products, also analyses the new sawing rules which govern sawing operations when tungsten carbide is used.

The second part of the article, appearing in the January issue, told where to use carbide tipped saws, and then discussed such matters as tension, velocity and dulling, and feed control.

In this third and final part, we learn how the problem of maintenance in small shops is being overcome, and discover why sharpening schedules must be set up for each individual operation.

There is a facet of this transition to carbide that, at first glance, seems to present an economic problem. There are thousands of small shops and factories that find a change to carbide tipped tools requires so few man-hours of work for sharpening that they cannot justify the purchase of the precision machinery and the wages of a highly skilled toolmaker type workman to operate that machinery.

Local Service

This problem is in the process of solution now. Competent local service shops will be available, equipped with good machines and staffed with skilled workmen. These shops will provide an efficient service, *sustained by many saw users at individual low cost.* This is a fundamentally sound and economic answer to the maintenance of carbide tools. Every user of carbide tools should give this plan their most serious consideration and support. Under this plan, competent repair and accurate precision grinding will be available to every size plant within a convenient distance. Such a service shop can provide prompt service at reasonable costs to the individual plant.

Change More Often

If all power feed, motor driven rip saw machines were equipped with an ammeter to show the actual power drawn from the line, rip saws would be changed more often, rather than run to semi-destruction before removal

(Continued on page 32)

CARBIDE SAWS

(Continued from page 31)

for service. Many have noted that where the operator feeds the material *by hand* and has to push it through the saw, he does not "forget" to change the blade the moment it begins to get dull. Set up sensible saw change schedules and see to it that they are respected.

The determination of and establishment of sharpening schedules is a matter that must be worked out for each operation. Many variable factors have been mentioned which have a definite influence on the life of the saw, and control the amount of work it will do before dulling to the point of probable failure.

The same carbide rip saw blade that will run six months or even a year between sharpenings, cutting soft woods in a small planing mill, should be sharpened much more frequently if transferred to a production plant where the actual footage that goes through the saw is many times greater and the material more abrasive.

There is seldom any relationship whatever in terms of time in the sharpening of rip saws and cut-off saws. As a general rule, a tremendous footage passes through a rip saw in comparison with a cut-off saw. Reduced to actual terms of work, the rip saw does several times more work per hour, therefore, it must be sharpened more frequently than a cut-off saw. Although the rip saw does a great deal more work, it usually has less teeth to absorb the wear. The cut-off saw has more teeth to absorb the wear and less work to do. When cut-off saws with needle point carbide teeth must be maintained for smooth end cutting at low rim speed, more frequent sharpening will be required. It is well to remember that high rim velocity obviates the necessity for needle pointed teeth to secure smooth end work. High rim velocity will greatly increase the runs between sharpenings.

Excessive hook angles on cross cut and cut-off teeth are not desirable on carbide saws. The fine points and small included angles are less shock resistant and break down more rapidly. With less carbide in the point, wear is increased.

No one factor is going to exercise a greater influence over the extent of usage of tungsten carbide tipped tools in the wood working industry than proper maintenance, combined with competent advice in their operation.

END

Gluing Fault	Possible Causes	Apply these "Rules for Good Gluing"
Blows or Blisters (Mostly in center part of large panels, in all-veneer construction and between core and crossband)	Press time too short	2, 40, 29
	Moisture content of stock too high	11, 24
	Non-uniform Moisture Content (wet spots)	14
	Assembly time too short	29
	Spread too heavy (all over or in spots)	17, 25
	Press temperature too high	40
	Presence of defects in the stock	14, 17
	Adhesive mix too thin	4
Precure (No transfer or spotty transfer of glue from crossband to face or back or to cores. Spreader marks show on crossband.)	Adhesive mix too reactive	2, 3
	Spread too light or non-uniform	26, 27, 25
	Assembly time too long	30, 36
	Hot veneers or cores	13
	Hot cauls	32
	Press temperature too high	40
	Porous veneers	26
	Use of stock of non-uniform thickness	18, 28, 31
Bleed-through (Areas difficult to finish, won't take stain, etc., due to excess penetration of glue)	Faulty type of extension	6
	Face veneers too high in Moisture Content	11
	Adhesive mix too thin	4
	Spread too heavy	26
	Assembly period too short	29
Warpage (Any variation from flat, true panel)	Unbalanced construction	21
	Non-uniform moisture content	10, 11
	Non-uniform spread	19, 20, 25
	Faulty core stock	14, 15, 16
	Press temperature too high	40
	Over-curing in the Hot Press	41
	Improper conditioning	42 or 43
Starved joints (Weak bond. Glue transfers, but very little glue in joints.)	Foamy mix	4, 8
	Adhesive mix too thin	4
	Spread too light	19, 26
	Assembly time too short	29
	Excessive pressure	39
	Porous stock	26
	Faulty type of extension	5, 6
Spotty Bond (Good in some areas. Poor in others.)	Insufficient or non-uniform pressure	18, 20, 22, 31, 37, 38
	Non-uniform spread of adhesive	14, 16, 17, 19, 20, 25
	Uneven press temperature	34
	Assembly time too long for certain areas	28, 30, 36
	Face veneers too well sized	23
	Improper mixing	7, 8, 9
	Careless veneer handling	27
Weak Bond (powdery glueline—see also "Precure") (Green or moist glue line)	Stock (particularly cores) too dry	10
	Adhesive mix not reactive enough	1, 2, 3
	Press temperature too low	34, 35, 12
	Press period too short	30, 40, 12
	Moisture content of stock too high	11, 24
	Spread of adhesive too heavy	26
Face Checking	Moisture content of stock too high or too low	10, 11, 24
	Improper conditioning	42 or 43
	Press temperature too high	40
	Press period too long	41
Indentations	Defective equipment	33
Low water-resistance (With good dry strength)	Testing before 4 to 6 days' maturing	44
	Too high or faulty type of extension	5

Check List for Gluing Problems

This Borden Company gluing chart is designed to help you find answers in a hurry when glue room problems occur. Although the chart is designed primarily for hot glues, many apply also to cold glues.

Storage

1 Rotate your stocks, avoid overaged glue, and store glue in a cool, dry place.

Ingredients in the Glue Mix

2 Choose the correct type of glue and catalyst for your plant conditions.

3 Determine mixing proportions of ingredients (particularly powders) by weight and not by volume.

4 Use just enough water to provide proper spreading consistency.

5 Use only fresh, white wheat flour extender with low ash content and low water-taking capacity, and do not impair the water-resistance of the bond by using too much extender.

6 Use shell flour (Glufil) as 10 to 25% of total extender—to prevent bleed-through and excessive penetration.

Mixing

7 Keep your mixer clean and in good working order, and remove all traces of cleaning compounds before using mixer.

Add the ingredients in the order directed, for best results. When mixing powders, make a heavy mix first—then add water.

Use water between 60 and 70°F.

Do not fill mixer to more than 2" above top blade.

8 Operate mixer at 60 to 65 rpm.

9 Do not let mix stand for long periods before it is used.

Kiln Drying, Veneer Drying, Plant Conditions

10 Do not dry core stock or veneers below 5% unless they will pick up moisture before use.

Humidify glue room if heating system dries air below 25% relative humidity.

11 In wet seasons, rehumidify plant or keep stock dry in special storage.

12 Maintain plant temperatures at 70°F. or higher where urea resin glues are cured at room temperature.

13 Allow kiln dried veneers and core stock to cool before spreading.

Core-stock

14 Avoid core stock with worm-holes, dents, knots, etc. And do not use dopes and fillers that absorb and hold an excess amount of water.

15 To prevent warping: Do not use woods of different density in the same cores. Do not use wide boards in core stock. Avoid rough, rotary cut veneer cores.

16 To avoid sunken joints in core stock, do not surface cores too soon after edge gluing.

17 Keep planers in adjustment to avoid planer marks and dips in core stock.

18 Do not surface cores unless they will be used within a few days.

Veneers

19 Avoid wavy and warped veneers where possible.

20 Do not use veneers of unequal thickness in the same crossband or as core stock.

21 To prevent warping: Avoid diagonal grain veneers. Use same species and thickness of veneers, where possible, for faces and backs.

22 Avoid thick tapes or marquetry on face veneers.

23 Use minimum spread when splicing to avoid squeeze-out at the splicer joints.

24 Be sure veneers are within the proper Moisture Content range for the adhesive being used.

Spreaders and Spreading

25 Recover and regroove worn spreader rolls.

Replace worn bearings on spreader rolls.

Use proper grooving for the type of glue and spread required.

Be sure glue rolls are aligned with each other and with doctor rolls.

Keep spreader rolls clean of dried glue.

Be sure top and bottom rolls apply equal spread.

26 Apply the proper spread for the adhesive mix being used and the condition of the stock. Rough, loose-cut and porous stock requires a heavier spread than smooth, dense stock.

Handling Spread Veneers

27 Do not wipe glue off crossband by sliding lumber core on spread veneer. Also avoid wiping glue off gluing area with gloves.

Assembly

28 When spread veneers are warped and loosely piled, consider it as "open assembly."

29 Use a longer assembly period to prevent blisters (hot press), bleed-through or starved joints (on dense stock). When long assembly is required, use, if necessary, a slower catalyst and longer pressure period.

30 Use a shorter assembly period or slower catalyst to prevent precuring. (Where short assembly time is practiced, a fast catalyst may be used to obtain faster cure.)

31 Be sure that all panels in one press opening are the same thickness.

Caul boards

32 To avoid precure, cool hot-press cauls before assembly.

33 Keep cauls clean, smooth and waxed.

Presses and Pressure

34 Be sure all steam traps are working properly, and clean out channels in the platens if they appear to be water-logged.

35 Be sure steam pressure is adequate to attain required press temperature, and do not start pressing until press is fully heated.

36 Use automatic loader where necessary, and be sure press closes quickly.

37 Be sure press is not out of line causing uneven pressure.

38 Be sure that press delivers recommended pressure so that all surfaces are brought into intimate contact.

39 Avoid excessive pressures on dense stock unless delayed assembly is used.

Pressure Periods

40 Do not use high hot-press temperatures to attain short pressure periods unless moisture content of stock is carefully controlled.

41 To avoid excessive drying or overcuring, do not leave panels in the hot press during lunch hours or "break" periods, and always remove panels as soon as the press is opened.

Conditioning of panels

42 For quickest cooling or heating of glued panels, they should be stickered.

43 For gradual cooling of panels, to prevent warping, they should be squarely dead piled and weighted for at least 12 hours.

44 Allow a maturing period during which complete cure develops, before testing.

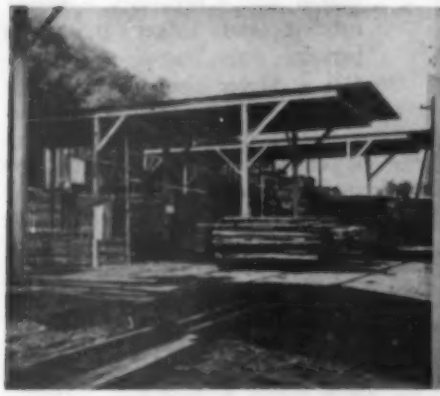


Fig. 13

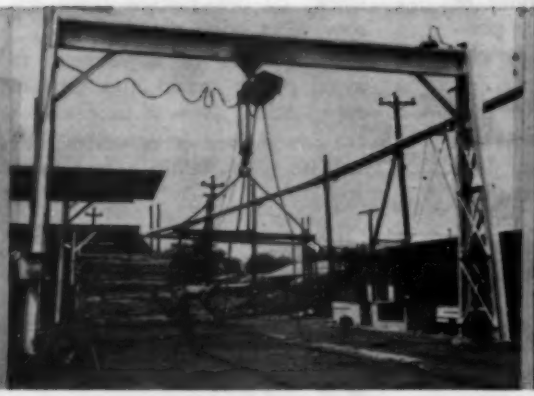


Fig. 14

Fig. 15

ELECTRIC HOIST in the lumber yard (Figs. 13 and 14) cuts cost and facilitates handling. Note how loading points are covered. Cable type lumber lift (Fig. 15) raises loaded kiln cars to upper level.

Fig. 19

MINIMUM OF REACHING by operators has been accomplished by arranging conveyor belts close together, as seen in Fig. 19.

Fig. 20

CORE STOCK BOARDS of random widths are here being selected for length and stacked up on dead roller conveyors.

A Graphic Picture of the Cavalier Mill

Here's a story about invention, innovation, and imagination as it applies to the lumber manufacturing and veneer end of one of the Nation's largest cedar chest and furniture manufacturers. Presented at the Midwest FPRS meeting. The second of two parts.

by W. G. RAOUL

Cavalier Corp.

From the gang mill our lumber is taken on carts across Water Street to the lumber yard on the other side. Here the lumber is unloaded with an electric hoist and stacked on kiln cars in the usual manner.

The next two pictures (Fig. 13 and 14) show this hoist and various features of our unloading and stacking sheds. We have four loading points all covered from the weather and adapted to handle lumber from our mill, from trucks, or from railroad cars.

The next view (Fig. 15) shows a cable type lumber lift which raises the complete kiln cars to the upper level. In this picture it is being used as a stacking point for the lumber.

The best over-all view of our lumber yard can be seen in the original aerial photograph. The entire yard is on rails and the cars are moved by means of gasoline powered transfer cars. Notice the branch of the yard which runs back into Blue Goose Hollow. We got along without this for many years but in this business you have to keep up with the times and in 1951 it has been fashionable everywhere to build up large and unbalanced inventories. Our beautiful lumber extension back into the Hollow has been a great help in this respect and probably have as unwieldy an inventory in this picture as you will find anywhere. Fortunately at present writing it has been somewhat reduced.

The next view (Fig. 16) the en-

Fig. 16

DRY KILN shown in Fig. 16 is one of four. Vapor pouring from door contains only small percentage of total cedar oil. Fig. 17 shows cut-off Porter Hydra-cut saw installations. In Fig. 18 surface stock feeds onto belt.

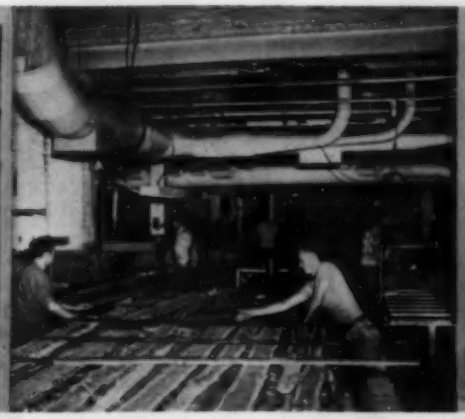


Fig. 17

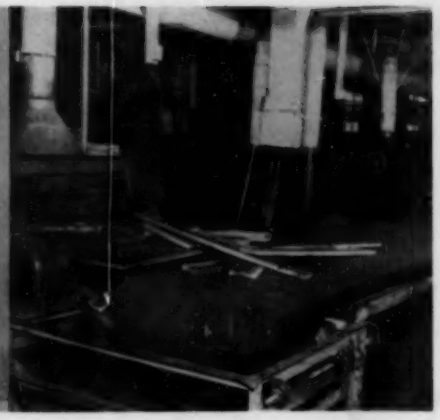


Fig. 18

Fig. 21

RIP MATCHING TAKES PLACE here before gluing up. Matched pieces go to lower floor by roller conveyor.

Fig. 22

GLUE SPREADER IS TO RIGHT of panel gluing machine. One operator can lay stock on spreader, place it in bonding machine, and take out glued panels.

trance to one of our four dry kilns with cedar vapor poring out above the doors like smoke. Most of the oil which is found in cedar remains in the wood even after drying but one or two per cent is lost in the kiln. We estimated once that we boiled away some 30,000 pounds of oil a year in our drying process, but as yet we have found no economical way to recover it, and if we did we would probably upset the whole market for cedar oil, which is an uncertain commodity at best.

Alongside the kiln may be seen small cars which bring back the check sticks and bottom boards and kiln bunks from within the factory. It is always astonishing to see how much tonnage in check sticks and bunks you have to move around. It is one of those handling problems which can be easily slighted in a new layout. We have a workable arrangement here but it is a long way from the dry shed all the way back to the stacking end of the lumber yard.

Moving inside the factory we have a view (Fig. 17) of two Porter Hydra-Cut saws with the usual conveyors to carry the stock away to our planers. Between our cutoff saws and planers we have rip saws placed primarily for the purpose of splitting warped boards. When you get a fairly wide board with some warp in it you always have the problem of the planers biting off the corners and producing thin lumber. If such boards are split down the middle before planing it eliminates most of your problem. This idea is gaining wider acceptance and will probably become a standard feature in most rough mills. It is a very good idea whenever you have to deal with warped lumber.

There is a corollary problem, however, and that is that these saws are seldom necessary fulltime. We have no need for them at all on cedar and consequently must let them stand idle or use them for miscellaneous dimension stock ripping.

The next view (Fig. 18) shows the outfeed end of the single planer which surfaces stock from the cutoff saw. The first step in our planing operation is to pass the stock over a jointer with the usual spring feed mechanism. This gives you one flat surface before going through the single planer, but is another feature which we do not use all the time. Since we saw our own logs, our present aim is to get by with as thin a rough stock as possible and we generally find it unnecessary to plane both surfaces of the board before gluing up. Furthermore, our cedar stays pretty straight and a light planing on one face is all we need.

The next step in our operation is the rip saw lineup. Here we have crowded quite a lot of machinery into a very small area. Stock is brought to the rip saw on a belt conveyor at table height, as may be seen in the photograph. Finished stock is

(Continued on page 40)

Fig. 1: Single opening hot press.

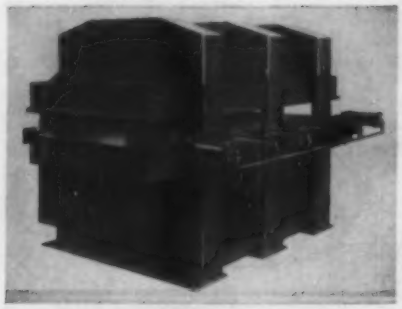


Fig. 2: With horizontal pressure cylinders added.

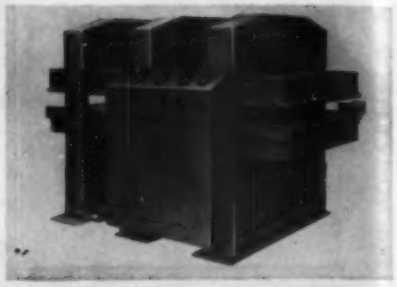


Fig. 3: Control station for Two-directional pressure.

Fig. 4: Double opening hot press, with side pressure.

How Hot Presses Developed

Developments in the manufacture of hot press have proceeded rapidly to make available in stock models presses which fit nearly every type and size of gluing operation. This article explains jobs various presses will do.

by T. D. PERRY

Twenty years ago hot pressed plywood was a novelty, and the hot presses in operation could be counted on the fingers of one hand. There had been an upsurge during World War I, when plywood glued with blood albumin became important for the primitive aircraft of that day, but the project was short lived.

The revival started in the early 1930's, when Tego film, a phenolic resin adhesive, became available in the United States as an import from Germany. While its cost seemed unreasonably high, and the significance of its waterproof qualities was not fully appreciated, some of the earlier hot presses were dusted off and put back into service. These presses were slow and clumsy, but they served a worthy purpose in demonstrating the advantages of hot pressed resin plywood, particularly in aircraft, boats and weather exposed buildings.

It was only natural that progressive plywood manufacturers, recognizing the European origin of Tego film, began to import the latest designs of hot presses, in the belief that waterproof plywood had a distinctly promising future, as proved to be the case. Hydraulic press manufacturers in this country followed suite, but there was one significant difference between domestic and imported hot presses. The foreign presses, made in areas where metals were hard to get, were cautious in the use of material, but lavish in mechanical perfection. The European workmanship, from localities where wages were relatively low, was marvellous, but the safety factors for ultimate strength left something to be desired. On the other hand domestic presses were much more sturdy with all the refinements necessary for making hot pressed plywood of high quality.

At first, 5-opening hot presses were considered as large as could be operated efficiently, but enterprising plywood makers found that an expert crew could handle 10-opening presses. On the Pacific Coast, where all plywood was of standard size (48" x 96"), it was found practical to operate 16- and 20-opening hot presses, but with mechanical loading attachments.

During 1936-40, the writer had many interesting experiences in promoting hot pressing. He was employed by Rohm & Haas, who were starting the production of Tego film in this country, and was given the job of selling Tego. Since very few woodworkers knew much about hot presses, and since the high cost of multi-opening hot presses seemed exhorbitant, his task became, primarily, one of selling hot presses, without commissions, in order to develop an eventual market for Tego! The going was a bit rough, but by 1939, some 90 hot presses were in operation, and the evolution from cold pressing to hot pressing was well on its way.

One of the challenging phases of the problem was its primary objective of waterproofness in plywood. Eventually, a supplementary objective proved to fully as important, i.e., that of shortening the complete bonding cycle from some 4 to 6 hours in clamped bundles, to a matter of 5 to 10 minutes, when hot pressed plywood was fully bonded. The saving in floor space, in process inventory, and in the elimination of clumsy auxilliary clamping equipment, was incalculable.

The hot presses of this era were heavy and sturdy, requiring substantial foundations, and could only be located near the ground level. The installation work usually added a couple of thousand dollars to the job, not to mention delays of several months after purchasing and before production.

By 1948-49, the score stood at some 400 hot presses. Most of the major plywood producers and of the larger furniture makers, were adequately equipped. Experience appeared to indicate that it was difficult to justify or to amortise the cost of a hot press installation, where the daily plywood requirement was 5,000 sq. ft. or less, and in some cases up to 8,000 or 9,000 sq. ft. This left thousands of small shops out in the cold, literally speaking, and unable to see their way clear to adopt the current hot press techniques, and to meet the competitive advantages of hot pressed resin bonded plywood.

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RCI

HOT PRESS *(Continued from page 36)*

Fig. 5: Triple opening hot press, installed over pit in floor.

However, it was not long before small hot presses were introduced which were economical for small shops.

The small hot presses were carried in stock in standard sizes, could be ordered, shipped by truck, installed and connected up ready for operation in a matter of a week to 10 days, as contrasted with 3 to 6 months for a multi opening hot press. With a potential output of some 2,000 sq. ft. of plywood per 8 hour shift, this type of hot press filled the long felt need of a hot press for many producers of quality hot pressed plywood products in modest volume.

This hot press rapidly became an important factor in the woodworking trade, and made possible the use of hot pressed plywood by almost every type of woodworker. It is stated that some 200 small hot presses were sold in the first 3 years of operation. Again the domestic manufacturers of hydraulic hot press followed suite, so that this type of self contained hot press has become well established in the woodworking industry.

This single opening self contained hot press has been developed to serve the relatively small woodworking plants in northwestern Europe, where mass production on the American scale, was unknown, and is illustrated in Fig. 1. This press has a pair of hydraulic cylinders between each two frames. The frames are welded structural steel, with ample strength to exert specific pressures (on the plywood) of 150 lbs. psi. The construction of the platens is quite a departure from the drilled plates used in most multi opening hot presses, since they are welded steam chambers of generous capacity, some 6" deep, adapted to use steam at 5-30 lbs, pressure. This will heat the plates to around 235°F with 15 lbs. steam, and the large volume of steam insures excellent heat maintenance. The "daylight" or clear opening between the platens is approximately 6", facilitating fast loading and permitting thicker assemblies than in most hot presses.

Average Output

With a 2-man crew on the spreader and press, operating on a 3-5 minute bonding cycle, the output will average around 2,000 sq. ft. per 8-hour shift in a 44" x 88" unit, based on utilizing 2/3 of the platen area. This requires a fast setting catalyst in a urea resin adhesive. Temperatures are not adequate for phenolic resin adhesives. Convenient loading and unloading tables are easily made by factory carpenters. The use of aluminum cauls is optional, since the laid up assembly can be pushed into the press opening without lifting.

An interesting modification of this single opening hot press is shown in Fig. 2, where 6 side pressure (Horizontal) cylinders are added. With this press the pregluing of lumber core strips can be omitted, and all glue joints, edge and surface, can be cured under heat. While this involves accurate surfacing and edging of the core strips, it wholly eliminates the clamping of cores, their redrying, and final surfacing. This may be a considerable advantage in saving time and labor, especially in small runs of odd sizes. The side pressure cylinders are hydraulic, actuated by the same pumps as the platens. The edge pressure reaches its maximum, automatically, just ahead of the face pressure, so that tight core joints are assured.

The control mechanism for this press, with supplementary side pressure, is shown in Fig. 3. When plywood is narrow, auxiliary side strips, of wood or metal, can be added as required.

If a customer requires a daily production greater than can be turned out from a single opening press, he has the option of an extra single opening hot press or of the installation of a double opening press, as shown in Fig. 4. While this is shown with supplementary side pressure, it is also available without.

In order to have the press openings at a convenient working height, the daylights are considerably reduced in these double presses, but there is an obvious saving in floor space in one duplex unit, as compared with two single presses and the operating clearance required for loading and unloading.

Low Pressures

While most of the demand for self contained hot presses, adapted to low pressure steam, has centered in the single and double types illustrated in Figs. 1, 2, 3 and 4, there is a growing demand for larger units, making plywood up to 4 by 8 feet, as is shown in Fig. 5. Here the platens are still about 6" deep, as in the earlier designs, and this particular installation was set over a sub-floor pit. Other smaller types of triple opening presses (See Fig. 6), are the customary self container units, supported on the floor. However their size and weight make them rather more difficult to move or to adjust to changes in manufacturing processes, a feature which may be quite advantageous in the smaller units. Whether further enlargements in this type of press will be practical may be a matter of some doubt, and it is hazardous to attempt

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WORLD'S LARGEST EXCLUSIVE MANUFACTURERS OF KNIVES

HOT PRESSES

(Continued from page 38)

predictions in an industry as enterprising as plywood.

The single opening hot press, as illustrated in Figs. 1, 2 and 3, has some 6" of working space, vertically, and provides ample opportunity to make formed plywood with pairs of metal dies or matrices, that derive their heat from the platens. Examples are the slightly crowned plywood faces and backs of such stringed musical instruments as violins, violas and cellos.

Plywood construction is essential to prevent splitting, and while they have been made by a cold gluing process, the hazard of wood rupture is considerable. The normal over night clamping period with cold glues requires a considerable number of forms. It is well known that heated wood develops plasticity, and permits sharper bends than can be obtained in unheated wood. One musical instrument maker has found this single unit press a definite improvement over his earlier technique, since one pair of metal forms is sufficient, and he can abandon the many pairs of wooden forms that were far from satisfactory.

Other similarly formed plywood products are surgical splints, crowned covers or lids for instrument cases, serving trays, plywood moldings, and many other similar decorative plywood products.

The last 20 years have seen the development of hot presses, from mammoth to midget sizes. Hot presses and resin adhesives have revolutionized the plywood industry. Plywood, made under modern methods is far ahead of its prototypes. One can but wonder what this enterprising industry will do next? It has a splendid record of substantial achievements in the 75 years since its start in about 1875.

CAVALIER

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dropped on a lower belt (Fig. 19) and waste edgings are placed on a belt running about 5½ feet above floor level. There are, of course, many installations where conveyors bring stock to the rip saws, but in most cases the belt runs at an angle to the saw. We were very crowded for space and had to put our machines as close together as possible. This was the primary factor in the present arrangement, but it has given us one additional advantage in that our operators have a minimum of reaching and handling to do. The conveyor is so close to the saw table that stock may be reached with the greatest ease. When you jam this many belts into a small space, however, you always get a difficult cleaning problem.

Actually, of course, the perfect furniture plant has never been designed. One good arrangement would be to place the whole factory up on high stilts with an open area beneath so all scrap could then be dropped through the floor and carried away from below with a minimum of trouble and confusion.—A brilliant idea of course, but where it falls down is that you eventually have a good season or two and decide you have to enclose the basement for more manufacturing space. This, of course, puts you back where you started. The perfect answer would be to build a factory over a bottomless pit, preferably over an active volcano which would burn up the scrap as fast as it fell through.

From the rip saw line our stock drops through a hole in the floor to a broad belt conveyor on the floor below. Since most of our production is for core stock the boards are naturally in random widths and need be selected only for length.

This view (Fig. 20) shows men pulling off the belt and stacking up on dead roll conveyors. At the end of this sorting belt is another cutoff saw designed to salvage short stock from longer pieces having defects in one end. Somehow this operation should be closer to the initial cutting if it could be arranged. We all know that cutting first and ripping after is good in some cases but that in other situations ripping first and cutting to length after ripping might give a better yield. An ideal cutting method would be selective and would offer a choice of handling each board to best advantage. Other people have gone much farther into this field than we have and undoubtedly in the future there will be radically new approaches to this problem. For the present all we can do in our setup is cut first, then rip, then recut defective stock to shorter lengths. The recutting operation isn't perfect but it's better than nothing.

The next view (Fig. 21) shows our rip matching saw where we size our panels before gluing up. It is a curious thing about this operation that no two factories are able to agree on how it should be done. Furthermore, most matching is done on homemade rigs of one kind and another. We use a straight line rip saw fed by a roller conveyor. At the outfeed end we bridge a difficult handling problem where two different floor levels meet. The roller conveyor carries us over this step and we stack on the lower level.

The problem of rip matching or sizing of panels is, of course, closely related to the gluing equipment used. Like many other people in our field we have gone through several stages of experiment work on electronic gluing. Our first presses were homemade and we designed two or three different versions trying to get the thing that would exactly suit our operations.

We first made our presses with sufficient length of stroke so that we could glue up panels before sizing them. In theory this seemed by far the best way to do it because it is easier to handle a glued up panel over the rip saw than it is to handle the same width of separate narrow pieces. We found disadvantages in gluing up first, however, and eventually came back to sizing before gluing. One trouble was our wedge shaped boards which are fairly numerous in our cedar. Sometimes one of these wedge pieces would fly out of the press when the side pressure went on and it didn't just ooze out either—it flew clear across the room.

Another trouble with sizing after gluing is that you frequently rip through a glue line at a very acute angle and this is always bad for subsequent machining.

Here is a picture (Fig. 21) of our present panel gluing machine which has been very satisfactory. The glue spreader is on the right and the same operator is able to lay the stock on the spreader, place it for the bonding machine, and take out the glued panels.

I was once talking with the designer of this machine and I commented on the fact that his machine feeds from the side. "Yes," he said, "I was able to do that because I am not a woodworker. All woodworkers think that the material has to go in one end of the machine and come out the other because that's the way that practically all woodworking machines are made; but when you stop to think about it, there's no reason why it has to be this way. In the case of my core gluing machine I gained a great deal by feeding the machine from one side and taking the completed stock out from the front of the machine. It makes a one man operation."

Our core panels are stacked on dead rolls after gluing. We normally

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FOREST PRODUCTS RESEARCH SOCIETY

F.P.R.S. Monthly Bulletin ★

Research • *Development* • *Production* • *Utilization* • *Distribution*

by FRANK J. ROVSEK, Executive Secretary, P. O. BOX 2010, UNIV. STA., MADISON 5, WISC., FEBRUARY, 1952

FPRS 1952 National Meeting Plans Announced

RALPH BESCHER and KEN CHESLEY plan Organization and Program.

BESCHER, CHESLEY HEAD 1952 FPRS MEETING

Ralph H. Bescher, Manager, Technical Dept., Wood Preservation Division, Koppers Company, Orrville, Ohio, and FPRS North-Central Regional Executive Board Member, is General Chairman of the 1952 Meeting. Kenneth G. Chesley, Director of Research, Crossett Lumber Co., Crossett, Ark., and President-Elect of FPRS is Chairman of the Technical Program. Both men have been working continually since their appointment last June, in developing the content and committees of the coming meetings.

Working closely with Chesley, is Dr. Irving H. Isenberg, National Publications Chairman, of the Institute of Paper Chemistry, Appleton, Wis., and his Committee, composed of—J. B. Grantham, Oregon Forest Products Lab, Corvallis, Oregon; R. A. Cockrell, U of California, Berkeley, Cal.; Ray C. Rietz, U.S.F.P.L. Madison, Wis.; J. F. Saeman, also of U.S.F.P.L.; Eldon A. Behr, Chapman Chemical Co., Memphis; Fred F. Wangaard, Yale School of Forestry, New Haven, Conn.; and J. S. Bethel, North Carolina State College, Raleigh, N. C.

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NATIONAL NOMINATING COMMITTEE ELECTION RESULTS ANNOUNCED

The 1952 National Nominating Committee has been formed following results of the recent ballot for candidates.

Elected were: Fred E. Dickinson, Yale School of Forestry; Walton R. Smith, W. Smith Lumber Co., Mebane, S. C.; Frank H. Kaufert, U of Minnesota School of Forestry; and O. Harry Schrader, Jr., Douglas Fir Plywood Association. The Committee is also composed of the two immediate past presidents not serving on the Executive Board, George Garratt of Yale, and Edward G. Locke, U.S. Forest Products Laboratory, Madison.

President Roy Carter has named Edward Locke Chairman of the Committee.

The National Nominating Committee is to nominate at least one eligible member for the office of president-elect; one for the office of vice-president; and at least eight eligible members for the 1953 National Nominating Committee. Their nominees are

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Roy M. Carter, head of the wood technology curriculum at North Carolina State College, Raleigh, N. C., and President of the Forest Products Research Society, announces that the 1952 Annual Meeting of the Society will be held June 23rd through June 25th in Milwaukee, Wisconsin. Milwaukee was selected as the site for the meeting because of its proximity to a variety of forest industries such as forestry, lumber, chemical utilization, pulp and paper, furniture, millwork, veneer and plywood, and also such supporting industries as heavy machinery manufacturers, machine tools, and raw materials.

Roy M. Carter

Headquarters will be the large, centrally-located Schroeder hotel. All halls and meeting rooms will be in the Schroeder, famous along with the city of Milwaukee for its hospitality. Milwaukee is also famous for its extensive industries, breweries and eateries.

Tie-In with Vacation Plans

The meeting has been planned for the latter part of June to afford those who wish to vacation in Wisconsin the opportunity of combining their business meeting with a family vacation. Being held the second week of the Summer Furniture Market, it also enables those production and technical men of that industry to take in a full-day of furniture sessions in Milwaukee which is about an hour by train or plane from Chicago and Grand Rapids respectively. FPRS furniture day is Tuesday, June 24.

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1952 MEETING COMMITTEES

(Continued from page 47)

Perhaps the largest single assignment is handled by the Milwaukee General Arrangements Chairman, Robert Hiller, American Cyanamid Co., who resides in Hartland, Wis., a suburb of Milwaukee. His various committees are responsible for hotel

Sandy Stuart

Bob Hiller

arrangements, plant tours, ladies and family activities, entertainment and transportation. Working with Bob are sub-committee chairmen Casper Strong, Bakelite Corp., Entertainment; Forrest F. Beil, Curtis Cos., Transportation; Howard Bostwick, Wisconsin Chair Co., Plant Tours; George Stanley, Pressed Steel Car Co., Hotels and Meeting Rooms; Marie Roberts, U.S.-F.P.L., Ladies' Activities.

Others officially serving on the above sub-committees include: Joseph Paul, General Superintendent, Phenix Mfg. Co.; and Stanley Gebarski, Allis-Chalmers Mfgr. Co.; Donald G. Coleman, U.S.F.P.L.

Other Committee Heads

Next to local arrangements, public relations assumes large proportions in any venture of this sort. Heading this committee is Alexander "Sandy" Stuart, Production Manager of the John Widdicomb Furniture Co., Grand Rapids. Assisting him are, Walt Hagstrom, Advertising Manager, Mattison Machine Works, Rockford, Ill.; Richard C. Art, Western Advertising Agency, Chicago, Ill.; and Richard J. Brown, Advertising and Sales Promotion Mgr., Delta Power Tool Div., Rockwell, Mfgr. Co., and William Barta, Publicity Director of the same firm.

Joe Allegretti

REGIONAL NOMINATING COMMITTEES ANNOUNCED

President Carter announces Nominating Committees for North-Central and South-West Region Executive Board Members. In accordance with provisions of the Constitution the President's selections have been made after consultation and consideration of Section recommendations.

The vacancies will be created by the termination of three years of office at the next Annual Meeting of Ralph Bescher and Lester Carr. Each Regional Nominating Committee shall nominate at least one eligible member to serve through three consecutive Annual Meetings following the 1952 Meeting.

The North-Central Committee includes: Harold Nelson, Ekstrom, Carlson Co., Rockford; Louis F. Nord, Plywood, Inc., Cadillac, Mich.; Ray C. Rietz, U.S.F.P.L., Madison; Ralph J. Toles, Masonite Corp., Romeo, Mich.; and Chairman, Carl J. Binner, Morgan Co., Oshkosh, Wis.

The South-West Committee includes: R. A. Cockrell, U. of California, Berkeley; E. B. Birmingham, Hammond Lumber Co., San Francisco; Lloyd R. Jorgensen, Whittier, Cal.; and W. R. Schofield, California Forest Protective Association, San Francisco. A fifth member, and Chairman, have not yet been announced.

Membership and Host Committees are Chairmanned by Joe Allegretti, the Masonite Corp., who is developing a sizeable staff of FPRS membership salesmen and others.

The Finance Committee, who also handle registration, is headed by Fred Heid, Sales Manager, Ekstrom, Carlson & Co., Rockford.

Ladies and Family Activities Chairman is Marie Roberts, former Assistant Secretary of FPRS, now back full-time with U.S.F.P.L. More will be heard of Marie and her activities in the near future.

Printing Chairman is Frank J. Rovsek, FPRS national secretary. In handling much of the detail of the 1952 meeting he will be ably assisted by FPRS Staff members Art Heim, Florence Van Kleeck, and Mary Jane Lingle.

The foregoing 1952 Meeting Committee composed of the various Committee Chairmen have already held

1952 MEETING PROGRAM

(Continued from page 47)

While the final program will not be released until some time in April, the tentative program shapes up as follows: Key-note addresses and a general program slanted toward Millwork on Monday morning, June 23; followed by con-current programs on Lumber and Wood Products Handling, and Chemical Utilization in the afternoon.

Tuesday morning, June 24, will have three different concurrent sessions—one on Furniture Finishing, one on Barking Methods, and one on Wood Fiber Aggregate Board. In the afternoon, the Furniture Session will continue along Production lines, and the Session on Housing and Construction will get into full swing.

Wednesday morning, June 25, will have two sessions—one on Veneer and Plywood, and a General Interest session Stressing Forestry Research and Developments.

Plant Tours Scheduled

Wednesday afternoon will be devoted to plant trips, through the tremendous and diversified Allis-Chalmers Manufacturing Company, and through the highly mechanized and modern Harnischfeger Prefabricated Housing operation at Port Washington, some 25 miles north of Milwaukee. In addition, there will be other unofficial plant tours available, such as Filer and Stowell, world's largest manufacturers of sawmill equipment; the famous Delta power tool Division of Rockwell Manufacturing Company, and others.

Visit U. S. Forest Products Lab

On Thursday morning a special train, or buses, will leave Milwaukee for Madison, Wisconsin, some 90 miles west, and the home of world-famous U. S. Forest Products Laboratory, the largest research institution of its kind in the world. To those of the industry who have for years corresponded with, but never visited, the Laboratory, an invitation is made to

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three working meetings, one in Oshkosh, Wis., and two in Chicago; and the Milwaukee Arrangements Committee recently met in Milwaukee with the Publicity representatives. The next large Committee meeting is scheduled for early February in conjunction with the Executive Board of the Society.

Research Publications

The following publications are reported as being currently available, without charge, from the U.S. Forest Products Laboratory, Madison 5, Wisconsin.

No. R200—*List of Publications on Mechanical Properties and Structural Uses of Wood and Wood Products, Rev. November 1951.* Lists literature on strength of timber and factors affecting strength; design of wooden articles or parts where strength or resistance to external forces is of importance.

No. R790—*List of Publications on Logging, Manufacture, and Utilization of Timber, Lumber, and Other Wood Products, Rev. October 1951.* Lists publications on methods and practices in the lumber-producing and wood-consuming industries; standard lumber grades, sizes, and nomenclature; production and use of small dimension stock; specifications for small wood products; uses for little-used species and commercial woods; and low-grade and wood waste surveys.

No. R1081—*List of Publications of Interest to Architects, Builders, Engineers, and Retail Lumbermen. Rev. November 1951.* Lists principal publications on basic properties of wood, strength, seasoning, fabrication by gluing, finishing, and protection against fire, insects, and decay.

No. D1911—*Basic Design Data for the Use of Fiberboard in Shipping Containers,* by K. Q. Kellicut and E. F. Landt. November 1951. Gives the technical background and convenient charts and data for engineering fiber boxes for specific dimensions, loads, atmospheric moisture content, and stacking conditions. A relationship is shown between the strength properties of the board components, machine compressive strength, and ultimate performance of the finished container.

Abstracts

Methods of Testing Adhesion to Wood, Armin Elmendorf and T. W. Vaughan, Elmendorf Research, Chicago. Paper Presented before Carolinas-Chesapeake Section, Clemson, S. C., Oct. 26, 1951.

Current standard methods for testing the bond in laminated wood and in plywood, and their limitations are discussed. The cycling test consisting of alternately soaking and drying a plywood test specimen is described, as are peel tests for flexible materials bonded to wood, and methods of testing the bond of sheet metal to wood. The cleavage test as a means to simulate service conditions is compared with the shear test, and it is pointed out that this test lends itself to investigating the effect of continuous loading and alleviated temperatures on bond strength. A simple torsion shear test, and a device for determining resistance of glued joints to repeated or vibration stresses are described.

Portable wood chippers are now available for farmer use; made in several sizes and mounted on farm tractors, or purchased trailer mounted. Knowledge is not adequate on the "when" and "how" to make the most productive use of wood chips. Experience of a few farmers, covering many years, has demonstrated that wood fragments, from both the agronomic and economic viewpoints, can be of service to farming. Limited but supporting research findings indicate that wood chips can effectively be used as a chicken litter, animal bedding, compost material, mulch for crops, soil blanket to prevent erosion, and as a soil conditioner or amendment.

1952 MEETING PROGRAM

(Continued from page 48)

observe its facilities and meet its staff of experts.

The home office of the Society is also located on the grounds of the Laboratory, and many will want to visit it.

Excellent progress is being made in the organization of the official luncheon, and President's Reception and Banquet, as well as varied entertainment for individual attendees or entire families. These will be reported separately in the near future.

With the planning and excellent caliber of technical sessions to be presented, all of those connected with or who have seen the organization work to date agree that Milwaukee is certainly a "must" in '52 for everybody interested in or directly connected with forest products research, development, production, utilization, or distribution.

MEET MRS. VAN KLEECK

Meet Mrs. Van Kleeck

The Society is very happy to introduce its newest Staff member, Mrs. Florence Van Kleeck, to you. She has been with us since the first of the year in charge of the book-keeping, secretarial and clerical detail of the office.

Leaving her native Canada in early youth Mrs. Van Kleeck eventually acquired a varied and responsible business background in between her marriage and raising two boys. In her work she has been associated with such public figures as Harold Ickes and Donald Richberg; and has contributed her talent to a number of fine organizations, including association work.

Mrs. Van Kleeck comes to us also with a background in our industry and in our Society. In 1934, her husband, the late Arthur Van Kleeck, began work for the U. S. Forest Products Laboratory here in Madison. He was well-known as a chemist in the Wood Preservation Division. Among his many projects was research in fire-retardant coatings for wood. He was an early member of the Society.

The Van Kleecks raised two boys, one of whom, Arthur, Jr., gave his life for his Country in the Battle of the Bulge, in December, 1944. Son Donald served with the U.S. Army in Japan until last July. He is now married and living in Madison.

Following the passing-away of her husband Mrs. Van Kleeck decided to resume her outside work again. Having been so intimately associated with the Forest Products Laboratory, and knowing of the work of the Society, Mrs. Van Kleeck is pleased to be associated with all of us, and knows she is with her friends. We hope you will have an opportunity to meet Mrs. Van Kleeck personally next June at the National Meeting in Milwaukee, Wis., if not before then.

A LOOK AHEAD AT FOREST PRODUCTS RESEARCH

By J. Alfred Hall, Director, Forest Products Laboratory,
Forest Service, U. S. Department of Agriculture

(Condensed from a Paper Presented before the FPRS Upper Mississippi Valley Section, at St. Paul, Nov. 30, 1951)

So much for a look behind. I have tried to show that, while we have consciously planned to advance wood utilization in many directions, a great amount of research has been dictated by developments quite outside of the forest industries. Now, let's take a look ahead.

In the use of solid wood we are still short of the goal—standards for use of wood as a material in accurate engineering. Our testing methods are still cumbersome, to say nothing of the great spread in wood properties within a single species. As intensive forest management develops, we shall find wood of a single species with more uniform properties because we shall grow it that way. We should be able to develop fundamental research in the relation of microscopic structure to mechanical properties, and thus methods of accurately predicting strength. We should also develop nondestructive methods for testing engineering structures.

With regard to methods of joining wood, our glue lines are too expensive, and joints still not as strong as they should be. An approach along the lines of the fundamentals of adhesion will be most productive. After all these years and with all the array of glues, nobody yet has a satisfactory explanation of how glue holds two pieces of wood together. The Duo-Kerf saw points the way toward cheaper glue lines because it makes possible a satisfactory wood surface at less cost. Apply the same fundamental approach to wood-cutting tools.

In the field of modified woods we have not succeeded in developing a cheap, satisfactory way of getting dimensional stability in wood. We have important information as to how and why wood shrinks and swells with gain and loss of moisture and we know how to prevent it, but it costs too much. This calls for further fundamental research in the surface chemistry of wood, and a close eye on further developments in the chemical industry.

Same is true of the general field of fireproofing. There is little sound fundamental information as to reasons for lowering of the combustability of wood by certain treatments . . . room for exploration in impregnation and surface treatment.

We can look forward to cheaper and better preservatives that will protect against decay without interfering with appearance or gluability. Again, we shall depend upon the chemical industry unless we come up with an answer to, "Why are our durable species durable?" We seem to have been content to skate about the edges, satisfied with our ability to impregnate nondurable species with coal-tar products or otherwise, when all the time nature has done the job in a few cases pretty well.

It is an astonishing fact that wood has retained a commanding position in the housing construction field. Central heating systems combined with insulated walls created new problems. Now come humidifying systems and systems of heating floors. We are now in possession of sufficient technical data to design wood floors sufficiently stable dimensionally to fulfill drastic requirements placed on them by changes in heating systems.

In the field of wood-fiber products one is almost tempted to throw away the crystal ball. There has been a very large shift in the packaging field from lumber to various forms of corrugated and paper board. These are wood, and their production is offering a very important favorable influence toward balanced utilization of the forest crop.

We have seen development of high-wet-strength papers for packaging and other purposes; of resin-impregnated, compressed paper goods with remarkably strong properties; of molded pulp products, resin bonded, and in a myriad of forms. We have seen wood fiber take over most of the manufacture of rayon, cellophane, and like products.

The advent of sandwich materials between layers of papers, hardboard, plywood, veneer, or metals may achieve very large volumes of production. They appear to have a very wide field of usefulness due to their unusual combination of light weight with great strength. The cost of these materials is still too heavily burdened with resin costs.

There are also large unexplored fields of development in textile fibers based on wood; opportunities in fibers from modified cellulose. New, cheaper, and more convenient pulping methods are in the making.

J. Alfred Hall

Finally, there is the general field of wood chemistry exclusive of fiber products—work must continue on the fundamentals. We speak of the utilization of tons of lignin, of by-products of pulping, or products of wood hydrolysis, but we fail to characterize lignin completely . . . failed to isolate reproducible lignin. Similarly, the large amount of material between cellulose and lignin, the pentosan fraction, still seems to offer rich rewards in usefulness.

If we consider the breaking down of the carbohydrate fraction of wood into its component sugars, we have probably the cheapest potential source of industrial sugars and foodstuffs available anywhere. That their full importance has not yet been realized is due not so much to lack of research results as to economic matters.

In recent years we have come to realize the relationship of utilization to forest management. Our research is oriented toward the utilization of unused species and the offal from other forest products industries. This is as it should be, but we are still overbalanced in the direction of applied research. One reason was war; another, the necessity of getting certain species into rapid use. We must build a fundamental research program in wood. We are still dealing with a complex biological material and we can never know too much about the fundamentals of wood.

NATIONAL NOMINATING

(Continued from page 47)

to be received by, and announced immediately after April 23, 1952.

Members of the Tellers Committee, George M. Hunt, Chairman, Edward C. Peck, and William Mitchell, counted a maximum of 397 ballots cast of total voting membership of 2000.

GREENLEE NO. 110 PLANERS IN OPERATION AT WHITE FURNITURE COMPANY, MEBANE, N. C.

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. . . Greenlee No. 110 Six-Roll Single Planer

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Yet the No. 110 is a production machine for all types of planing. Feed speeds for rough cuts as well as for finely finished work are available. The entire operation is performed with such ease and speed . . . the finished work comes out with such fine finish and accuracy . . . you'll be able to picture immediately the extra production the GREENLEE No. 110 SIX-Roll Single Planer can bring to your plant.

Friction, wear, and power consumption are reduced to an absolute minimum by means of ball and roller bearings, and oil-tight housings for the gears, which keep out dust and dirt. Bearings are lubricated by high-pressure grease gun, and the enclosed gears run in oil and lubricate themselves.

In all, the GREENLEE No. 110 Planer brings to all kinds of work . . . whether box boards or finely finished panels . . . unusual production speed, ease of operation, and accurate, smooth results. Write today for details. Greenlee Bros. & Co., 1922 Twentieth Ave., Rockford, Illinois.

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GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING and BORING TOOLS

CAVALIER

(Continued from page 40)

hold them from twenty-four to forty-eight hours before planing. This helps prevent sunken core joints, but is by no means a sure cure for all the trouble. In fact we don't think the answer has really been found with modern thermo-setting glues. There seems to be a certain inflexibility in the glue joint which prevents it from expanding and contracting equally with the wood on either side of it.

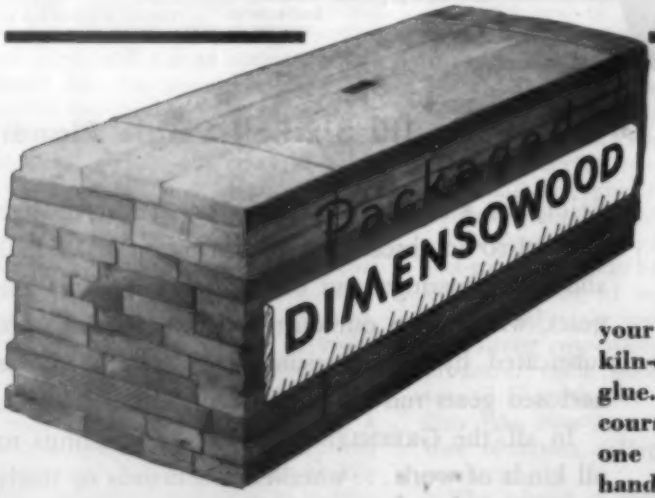
We have occasionally had bad core joints develop in stock which stood for several weeks before it was planed. We feel that this is sufficient proof that proper curing of panels is not the only requirement for good glue joints.

There is one more picture (Fig. 23) which I would like to show. That is the scrap pile outside of the factory. Waste from our cutoff saws, rip saws, and certain other machines falls directly onto a belt and is carried over this incline conveyor to be piled in the yard. Since we are located in a fairly large city we are able to sell our waste for kindling wood at a fairly good price, but even this is a rather inadequate use to make of a high priced material today. The pile of waste in this photograph represents perhaps two weeks accumulation, certainly not more.

The use of this waste is truly the great frontier in woodworking. Much more than 50% of all lumber goes into waste and if it were possible to visualize it, you might say that this wasted material represents a forest area greater than all the timberland in the United States. If we could use it all we would more than double our forest resources. This is a great challenge and practically everyone in the woodworking field is trying to work out something in the way of a logical waste utilization program. The basic research on many processes is well advanced and indeed the real problem today is to choose the waste utilization program which best suits the plant and the selling organization involved. You can make wall boards, core stock, or any one of several other materials, but making the right choice is really the problem. We sometimes tend to look at things exclusively from the engineering standpoint without considering that every product must be sold as well as made. Thus, while a diversified manufacturing operation which best utilizes all the raw material is sound from the production standpoint it may prove a difficult enterprise to manage. Your primary product of, let us say, furniture may be shut down at a certain point while there is a brisk demand for your various by-products. Problems of this sort can certainly increase your manufacturing difficulties.

In looking back over the history of our enterprise we see that it was first a primary lumber production, if we exclude the distiller who really doesn't belong in this story except by accident. Later on furniture production was begun to make a direct use of the lumber produced. In time this manufacturing operation completely overshadowed the original saw mill and the latter, as we have seen, finally disappeared completely for almost three decades. Problems of supply eventually led us back into the production of lumber, but this is a very highly specialized operation designed to feed our manufacturing. The new lumber production led us into a limited installation for producing veneer and now we are struggling hard to make some use of the waste we accumulate from all our operation. In other words we are growing toward a better use of material but we are certainly getting a more complex

(Continued on page 65)



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SAW MAINTENANCE

(Continued from page 29)

od for joining band saws, with the light-duty butt welder being used on saws up to ½-in. wide and the heavy-duty flash type welder used on saws up to 2 in.

The wider band resaws, rip saws and log band or head saws require the use of the automatic band saw grinders which are especially adapted to the longer tooth spacings and larger gullets and sharpen with an emery wheel of the proper shape. These automatic sharpeners are available for either hand saws, right hand or left hand cutting, and are usually furnished in separate sizes, one for handling 2 to 8-in. saws for resaw and rip saw work and the other for 7 to 16-in. width saws used for cutting logs.

The operation of the automatic band saw grinders varies considerably from the automatic saw filing machine to accommodate the wide variance of tooth shapes common to the wider band saws. These tooth shapes are formed by the action of a grinding head operated by cam equipment.

Adjustable post brackets are standard equipment with some of these automatic band saw sharpeners and are geared directly to the back rest of the machine. In addition to the automatically adjusted post brackets, and a double post saw guide to support these large band saws and a long filing clamp between the automatic post bracket and the automatic sharpener for proper alignment of the saw.

Most wide bandsaws require a swaged tooth rather than the spring-set tooth used on the narrow band saws. Swaging is performed with a hammer and bar and upset swage or by hand or air-operated machine swage.

Efficient to Operate

The hand-operated eccentric machine swage is a comparatively light compact tool which is easily adjustable to the type of tooth that is to be swaged. Its efficient operation is primarily dependent upon perfect contact between the die, anvil and tooth and the width of the teeth is determined by the length of stroke given the die lever. The amount the tooth is pulled forward is determined by adjustment of the front bracket spring.

In operation, the swage is set over the saw on the teeth and adjusted so the anvil is seated squarely on the back of the tooth, the swaging die will take hold of the front of the tooth, the front bracket or rest is on two teeth, and the back rest also rests squarely on the teeth. With the opening stop tightened up against the lever, the swage is clamped securely with the clamping lever. With the finishing stop properly adjusted, the swaging lever is pulled forward until the die lays against the anvil to complete the swage.

Self-feed air-operated machine swages are often used for swaging heavy gauge band saws to relieve the swage operator of the heavy pull and to insure more uniform and even swaging. Both feeding and swaging operations are powered by compressed air and the operator performs more of a guiding and inspection duty.

It is important that the teeth be side dressed after swaging and where the shaper is not used, the side file dresser is used to even up the sides of the teeth.

Most plants seem to prefer the swage shaper for band saw work which forms by pressure the side cutters of the teeth so that when the tooth is finished it will have three

(Continued on page 55)

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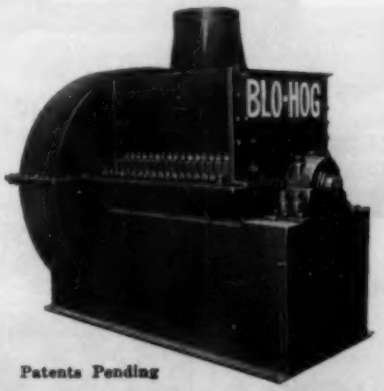

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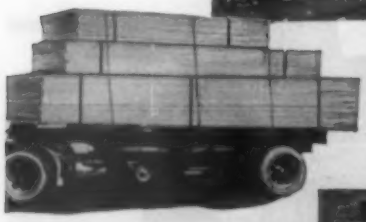

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PATENT DIGEST

by Royden C. Rinker

Saw

G. A. Goodlet. U. S. 2,560,641, July 17. Tractor saw attachment for tree-felling and log-cutting.

Ski

A. Rossignol. U. S. 2,560,663, July 17. A pair of skis comprising boards, obtained through ripping a shaped lath, bonded orthogonally with relation to each other.

Sign

O. I. Davis. U. S. 2,560,719, July 17. Improved sign comprising a wooden standard, a crosspiece, and a wooden ring.

Layout Fixture

J. Bollons. U. S. 2,560,756, July 17. Layout fixture for marking and cutting wooden trim of a right angular cross section.

Barrels

H. E. Thyen (to Jasper Wood Crafters, Inc.). U. S. 2,560,906, July 17. Bonding apparatus for attaching heads into wooden barrels, comprising hydraulic external pressure applying platens and an internal bag connected with a tube and a hydraulic fluid source.

Last Blocks

R. H. Schlueter (to Vulcan). U. S. 2,560,992, July 17. Shaping stock into a parallelepiped, passing non-intersecting cuts through the stock, and securing together with vertical surfaces in face abutment.

Tall Oil

R. W. Stephenson (to Kirby Chemical Co.). U. S. 2,561,150, July 17. Heating aqueous sulfate soap skimmings with aqueous sulfuric acid until tall oil is free from soap and separating.

Screen

R. Kaspar. U. S. 2,561,206, July 17. Foldable screen comprising elements having on their edges alternate recesses and projections to interlock adjacent elements together.

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SAW MAINTENANCE

(Continued from page 53)

cutting edges, one on the front edge, and one on either side extending down to the point. Proper shaping reinforces the swage point of a saw tooth so the center lip or cutting edge in the center of the point of the tooth can be used with light grinding for the first run of the saw after swaging and reinforcement of the sides prevent breakage in use.

These shapers usually operate with two movable jaws and a center-hung operating lever to prevent springing the teeth. They are simple and strong and balance easily on the saw with no sidewise influence. When properly adjusted, the shaper operates similar to the eccentric hand swage over the point of the tooth.

Various Operations

Benching operations performed on the band saw are tensioning, leveling and crowning and the equipment commonly used includes: a stretcher roll (sometimes called a roller saw stretcher or simply a saw stretcher,) floor rolls, wall brackets, stretcher bench, hammering bench, saw anvil, leveling blocks, round-face, cross-face and twist-face saw hammers, straight edges, tension gauges and back gauges.

Tensioning is the process used to open up the center of the saw blade and stretch the outside edges, particularly the back edge, to make the strain on the blade to come on the edges. Leveling is the treatment used to remove twists and lumps and crowning is an adjustment to fit the blade to the individual mill. Tension is also adjusted to fit the wheel and feed used. All work done for tensioning is done on the fast or firm part of the band saw blade but other treatments require local application.

The stretcher roll may be either a stationary or movable type but the stationary stretcher roll is seldom used for saws over 8 in. width or 17 gauge thickness. Pressure is provided by a ball thrust pressure screw and the top roll is usually provided with a spring to lift off the saw when pressure is released. Roll shafts of the movable roll stretcher are usually direct-powered and adjustment across the saw is made by means of a hand wheel and sprocket chain.

Leveling blocks are used both in machine work and in hand work and are generally available for leveling log band or head saws in sizes 10 to 14 in. wide, 48 to 72 in. long, and three or four in. thick; for band resaws or rip saws, from 6 to 8 in. wide, 48 in. long, and three in. thick. Saw anvils used chiefly in hand work range in face dimensions from five in. wide by eight in. long to 12 in. wide by 16 in. long and usually weigh from 80 to 100 pounds.

Saw Hammers

Saw hammers commonly used for hammering band saw blades weigh about 2½ pounds and are applied with light, uniform strokes. The round-face hammer is generally used for tensioning, crowning and straightening the back of the saw.

The straight edge is used to test the bandsaw for twists and lumps and also for tension adjustment. Tension gauges are used during the tensioning process to test for proper tension and back gauges are used to measure crown in the back edge of the saw. Some of the more common gauges of

(Continued on page 56)

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With the new Wide Kerf Chain, L-M Electric Deck Saws are cutting 40-inch logs to length in less than 60 seconds per cut! Photo shows efficient cut-off operation at the C. D. Johnson Lumber Corp., Toledo, Oregon. L-M Saw in this operation is mounted on a movable carriage, has an 88-inch bar and hydraulically-controlled lift.
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SAW MAINTENANCE

(Continued from page 55)

this type are: the combination tension and straight edge gauge, combination convex and concave tension gauge, and the combination back gauge and straight edge.

Another machine used in some plants is an automatic band saw retoother used to cut new teeth on worn band saws. The teeth are cut with a punch and die of the required size and shape as the saw blade is automatically fed through the machine on a saw carrier that is held against guide blocks. An indexing arrangement governs the rate of feed.

Keep Face Flat

It is important that band wheel faces should be flat, especially those carrying the wider band resaws and log band saws, to maintain the accuracy of the saws and to increase their working life. In most production plants this is done one or two times a year by grinding off only a small amount of the surface to compensate for uneveness and wear.

The band wheel grinder uses a cup grinding wheel that is driven by contact to eliminate the need for two power units. The grinding wheel is set to contact the wheel at the required angle and is advanced to it while the band wheel is driven at a rim speed of about 3,000 to 5,000 feet per minute. This provides a good grinding speed and aids in keeping the wheel face cool during grinding.

Have Stock of Files

Every department has use for many small service tools, such as wire gauges, speed indicators, etc., and must also stock a good supply of files and grinding wheels of the proper size, shape and cuts and grits. Files used on the automatic band saw filer for sharpening narrow band saws are usually a blunt, triangular band saw file with slightly rounded corners which provide just the right hook to the front of the teeth. Various other files are also used for touch up work, including mill files with round edges, rat tail files, taper and other triangular files.

Thin, free-cutting grinding wheels are usually used on the automatic band saw grinder or sharpening machine, usually of medium grit and fairly hard. They must cut free and fast without burning, keep a uniform shape and leave a good smooth finish. Both vitrified and resinoid bonded wheels are used and straight wheels with a round or beveled face and thin saucer type wheels are used. The diameter and thickness depend upon the type of machine used as well as the type of saw and tooth spacing. Wheels less than ¼-in. thick are usually resinoid bonded. Vitrified wheels are used for the higher operational speeds as they are less likely to burn.

Grinding Wheels

Since tooth shape is very important in the fitting of band saws, it is very important to keep grinding wheels dressed to the proper shape as well as keeping the cutting face of the wheel open and sharp. The most popular today seem to be the abrasive wheel type and the diamond dressers which do not remove as much stock as the older washer or cutter types. The dressing of grinding wheels is more of a sharpening than trueing process used to prolong the life of the wheel as well as to shape it to do efficient work.

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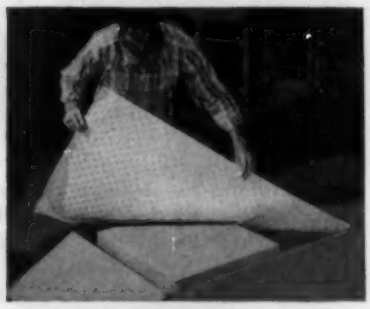
Cut-away view of shipping container to show design of interior bracing with corrugate inserts.



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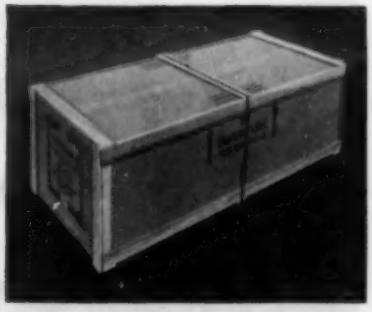

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FINGER JOINTING

(Continued from page 31)

1" deep finger-joint you could make a usable piece of stock for this rail. It is obvious that three 12" pieces would not prove valuable as you would have a cut off of almost 10". Such stock would be used more advantageously in the manufacture of muntin bars. It would be well to have random length stock sorted so that when the finger-joint is cut, two pieces going through the machine together will be matched up and the finished length would be more practical. If random length pieces are going to be utilized, we suggest that the operator run through a long piece and a short piece rather than two pieces which, when glued together, would be too long or too short for this specific end use.

Concerning the tooling for finger-jointing, we find that a plant which manufactures the products that could use finger-jointed parts usually has equipment to do successful finger-jointing. In most instances a fine finger-joint can be cut on a Double End Tenoner. If the finger-joint is to be cut on a Double End Tenoner the machine should be in good condition and the chain should be equipped with good rubber so that the cutterhead will not pull the stock out of its grip. The stock should be of uniform thickness so that the thinner pieces will not pull from the chain. There are some machines on the market especially designed for finger-jointing and these are most practical for the manufacturer that has a very large number of finger-joints required. Although the Single End Tenoner or Shaper could be used for finger-jointing, they would not prove practical for large production as the holding devices depend upon manual power.

Although no standard length and type of finger-joint has been established, many manufacturers find that shorter finger-joints give the best results. A finger-joint of approximately 1" long has proved to be quite successful. Using a longer finger-joint would not add enough strength to make practical the more difficult job of cutting the longer joint. Unless the item using a finger-joint is of an extremely special design, such as station wagon parts, a finger-joint of approximately 1" long is most practical. The finger-joint, moreover, can be only as strong as the glue that is used between the fingers. It can further be recommended that at least one finger be cut to every ¾" trickness of material. The parts to be finger-jointed should be rough planed to an equal thickness, and after being jointed and glued, they could then be machined to the finished moulding. To insure successful finger-jointing, a finger-joint of the reversible type should be used. The reversible type of finger-joint can be machined on one cutterhead; one part is then turned over to match up with the other. Thus the need for male and female parts—and male and female cutters—is eliminated. This elimination of male and female parts is of special value in random length finger-jointing, as the pieces can be selected at the time of gluing to give the proper final length.

To gauge the fitting of the finger-joints in soft wood, it is recommended that the finger joint be so machined that when the two members are placed together they will come within 1/16" to 1/8" of complete closure. For hardwoods, the space should be approximately 1/32" to 1/16" of complete closure. With the addition of glue and pressure to each end of the stock, the parts are forced together so that the glued portions are actually being clamped by the fingers.

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Users and manufacturers of woodworking tools are taking tips from the metalworking industry—Carboloy Cemented Carbide tips! And this hardest metal made by man is bringing phenomenal results.

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NAMES . . . EVENTS

(Continued from page 23)

It is located adjacent to the company's Durite moulding compounds and industrial resins plant.

WALNUT PRODUCTS, INC., has established a new plant in Gentry, Ark. which will be managed by TOM ROE of Des Moines, Iowa. The company is a subsidiary of the Iowa-Missouri Walnut Co.

NORTON BEHR-MANNING OVERSEAS, INC. has formed a new sales-distributing company in Mexico. It is known as NORTON BEHR-MANNING, S. A. de C. V., and is located in Mexico City where it will supervise the sales and distribution of the NORTON Co., BEHR-MANNING CORP. and NORTON PIKE COMPANY products throughout Mexico.

The NORTHPORT FLUSHWOOD DOOR CORP. has purchased the Moynahan bronze plant of Northport, Mich., and expects to be in operation February 1, 1952.

The MAUK-SEATTLE LUMBER Co. has purchased an office building at 3935 University Way, Seattle, Wash. The latest addition to the expanding Mauk staff is CHARLES B. HURLEY, formerly of Tacoma.

KOPPERS COMPANY, INC. will embark on an enlarged program of research, with a major portion of such work centered at Verona, Pa., where new laboratories are now nearing completion.

WEYERHAEUSER TIMBER Co. will manufacture one of its newest products—Weyerhaeuser fiberboards—at their Klamath Falls plant from previously little-used white fir.

U. S. MENGEL PLYWOOD CORP. has opened a branch office and warehouse in North Little Rock, Ark. at 120 E. 6th Street. GEORGE LINDLEY is manager and JIM MATHIES is sales manager.

WAPAKONETA MACHINE Co., Wapakoneta, Ohio, is planning new building construction which will increase its production capacity by fifty percent.

ILLINOIS COOPERAGE MFG. Co., has moved its general offices to Blue Island, Ill. at 12930 South Western Ave.

New Firms

AMERICAN SAW MILL MACHINERY Co., Hackettstown, N. J., has recently been acquired by a group of industrialists, headed by HAROLD W. UMSTADTER, who is now President of the Company. It will be operated as one of a number of companies managed by the American Portable Irrigation Co., of which Mr. Unstadter also is President.

Harold W. Umstadter

MEESE WOOD PRODUCTS, INC. Woodward, Okla., is a newly organized furniture company that expects

(Continued on page 64)

DIMENSION STOCK

SOLID • GLUED UP • MACHINED TO SPECIFICATIONS

MAPLE BIRCH BEECH

Kiln Dried Dimension Stock
Plain S2S—Machined—Turned
Solid and Glued Up

MICHIGAN DIMENSION CO.

General Office: 666 Lake Shore Drive, Chicago 11, Illinois
Factory: Manistique, Michigan

Manufacturers of
Precision Kiln Dried
HARDWOOD DIMENSION
Finished and Semi-Finished
FURNITURE & INDUSTRIAL STOCK
Bed Rails, Glued Up Tops & Core Stock

Fordyce Wood Products, Inc.
Box 312W, Fordyce, Arkansas

PLYWOOD DIMENSION
•
SOUTHERN HARDWOODS
⅝-in. and Thicker—Fully machined, circled, bored, shaped, etc.
•
WILLIAM B. COGGIN, INC.
80 E. Jackson Blvd. Chicago 4, Illinois
Telephone HArrison 7-3355

Carlton Smith Industries, Inc.
Glued-Up Furniture Dimension
P. O. Box 326 Phone 23
Bearden, Arkansas

PENOKEE
VENEER COMPANY

MANUFACTURERS OF

ROTARY, SLICED AND HALF-ROUND

VENEERS

IN

BIRCH—MAPLE—BASS—ASH—OAK—ELM—WHITE PINE

GENERAL OFFICES

MELLEN, WISCONSIN

P. O. BOX 110

TELETYPE, MELLEN 29—PHONES 205 - 3313

Penwood

PLYWOODS

Hardwood Plywoods for Quality Trade

THE ARISTOCRATS IN

BIRCH—MAPLE—RED OAK—WHITE OAK—ASH—BASSWOOD—ELM—WALNUT—MAHOGANY

PLYWOODS

SPLICEDWOOD CORPORATION

MELLEN, WISCONSIN

P. O. BOX 110

TELETYPE, MELLEN 29—PHONES 205 - 3313

EVERY TIME!

DECAL decorated products sell faster

Products sell faster, at greater profit EVERY TIME, decorated with Meyercord Decals. New full-color catalog of decal ideas shows *how* to add eye-appeal at a fraction of hand-painting time and cost. On any commercial surface — housewares, fabrics, novelties or juvenile items. Easily applied at production line speeds, durable, washable decals more than pay for themselves through increased sales.

Write now for full-color product decoration catalog of decal ideas. Business letterhead, please. Dept. 31-2

FREE

THIS BOOK SHOWS HOW!

The MEYERCORD Co.

World's Largest Decal Manufacturer

5323 W. LAKE ST. CHICAGO 44, ILL.

"OLIVER"

No. 261-AD

Single Surfacer

NEW features to give you accurate, fast planing with low upkeep

Capacity up to 30" wide, 8" thick—60' a minute . . . One-piece base assures permanent alignment of all parts . . . One-piece construction of upper housing . . . Fully enclosed feed mechanism provides maximum safety, longer life . . . Totally enclosed ball bearing worm gear drive for feed rolls . . . Precision ball bearings . . . Quickly adjusted . . . Lubricated chipbreaker cannot stick . . . Hand brake brings cylinder to quick stop . . . *Write for Bulletin No. 261-AD.*

OLIVER MACHINERY CO., GRAND RAPIDS 2, MICH.

NAMES . . . EVENTS

(Continued from page 62)

to soon be in production with a line of ranch house furniture.

OWASSO LUMBER CO., INC. is a new firm recently organized in Owasso, Okla. The incorporators are: J. RAY SMITH, L. T. PERRYMAN and WOODROW S. CLIFT.

The EAGLE LAKE MILLS, Eagle Lake, Maine, has started operations in the center of a thirty billion foot stand of maple.

The ABBOT & ABBOT BOX CORP., Queens, N. Y., has recently been organized. Directors of the new company are: JULIUS M. GERZOF, LAWRENCE COHEN, and ANNE KELLY, whose addresses are 22 Pine St., Freeport, N. Y.

BODCAW BOX CO., INC. was recently formed in Stamps, Ark. The incorporators are: A. L. WHITE, J. C. McMAHON, R. W. DRYSDALE of Stamps, and ALVIS FULLER of Lewisville, Ark.

The DAVIS BROTHERS LOGGING CO. of Mossyrock, Wash. plans the construction of a new sawmill on the site of the former J. H. ENGLAND mill in Winlock.

The AMERICAN VENEER PRODUCTS CORP. is a new firm in Kings, N. Y. The directors are: HERBERT CASPERT, GERALD GERSHAW and RUTH GELBERT.

The GREAT SOUTHERN BOX CO. plans to build a $600,000 plant at Lucedale, Miss. An annual payroll of over a half a million dollars is anticipated with about 250 employees.

The INDUSTRIAL PLYWOOD & TIMBER CO. has just been incorporated in Portland, Ore. by ROBERT J. JACOB, GARTHE BROWN, and HELEN M. STALCOCK.

QUALITY WOOD PRODUCTS, INC., New York, N. Y. has recently been formed with the following directors: JONAS J. SHAPIRO, CALLMAN GOTTESMAN and JANET PERLMAN, whose addresses are 350 5th Ave., New York City.

THOMPSON BROTHERS PULP WOOD & LUMBER CO., INC. is a new company in Ticonderoga, N. Y. PERCY E. THOMPSON, REXFORD A. THOMPSON, JR., and REXFORD L. THOMPSON, all of Ticonderoga are the incorporaters.

PRITCHARD LUMBER CO., INC., has been formed in Little Rock, Ark. with BETTIE E. PRITCHARD, J. G. PRITCHARD, D. L. PRITCHARD and A. L. PRITCHARD as incorporators.

THE GARDINER LUMBER CO., Gardiner, Ore., a subsidiary of The Long-Bell Lumber Co., Longview, Wash., is now producing plywood in its new mill.

Associations

WESTERN FORESTRY & CONSERVATION ASSOCIATION elected the following officers for the ensuing year at the recent conference in Portland, Ore.: President—C. D. ORCHARD, Deputy Minister of Lands and Forests, Victoria, B. C.; Vice-President for California—E. T. F. WOHLENBERG, Masonite Corp. Ukiah, Cal.; Idaho—JOHN L. ARAM, Boise Payette Lumber Co., Boise; Montana—A. L. HELMER, Polson Lumber Co., Polson; Oregon—E. P. STAMM, Crown Zellerbach Corp., Portland; Washington—E. R. ASTON, Biles-Coleman Lumber Co., Omak; British Columbia—S. G. SMITH, MacMillan and Bloedel, Ltd., Vancouver; Secretary—CLYDE S. MARTIN, Weyerhaeuser Timber Co., Tacoma; Treasurer—C. S. COWAN, Washington Forest Fire Association, Seattle; Assistant Secretary and Assistant Treas-

For the hand sanding of fine furniture, there's nothing better than Jewel Brand Garnet sheets. Available in a wide range of grits, Jewel Brand Garnet is the craftman's favorite, everywhere!

Manufacturers of television cabinets are finding that Jewel Brand Garnet Abrasives on power sanders give a finer, smoother finish, faster . . . and at less cost than synthetic grits.

THERE'S A JEWEL BRAND COATED ABRASIVE to do every job, large or small, and to do that job *quicker, cleaner,* at *lower cost!* Ask your distributor or write on business letterhead for catalog. Abrasive Products, Inc., 553 Pearl Street, South Braintree 85, Mass.

SHARPER, TOUGHER

Jewel COATED Abrasives

CUT COSTS!

urer—CARL V. HERSEY, Portland; and Forest Counsel—STUART MOIR, Portland.

The CALIFORNIA REDWOOD ASSOCIATION moved its main offices, in San Francisco, to 576 Sacramento Street.

The HARDWOOD PLYWOOD INSTITUTE, Chicago, Ill., at a recent meeting, elected as President, M. C. McIVER, President of the Penokee Veneer Co. and Chairman of the Board of the Splicedwood Corp. of Mellen, Wis. F. S. KUHN of the Southern Laminating Co., Memphis, Tenn., was elected Vice-President and CHARLES E. CLOSE of Chicago was re-elected Secretary-Treasurer. Newly-elected directors of the Institute for 1952 are: FRED G. McDONALD, of the Picayune Veneer and Plywood Co., Picayune, Miss., FRANK ISAACSON, of the Jamestown Veneer and Plywood Co., Jamestown, N. Y., CHARLES SOUTHGATE, of International Fibre Board and Plywood Sales, Ltd., Gatineau, Canada, C. A. KIRN, of The Mengel Co., Louisville, Ky., and GEORGE VEHLOW, of the Baldwin Plywood and Veneer Co., Gillett, Wisc.

HARDWOOD DIMENSION MANUFACTURERS ASSOCIATION will hold its 22nd Annual Meeting in the Edgewater Gulf Hotel, Edgewater Park, Miss., February 13 and 14, 1952.

CAVALIER *(Continued from page 52)*

"HOW TO USE WASTE such as shown in this scrap pile," says Bill Raoul, "is truly the great frontier of the wood working industry."

organization as we do it.

The situation which faces us reminds me a little bit of a conversation between a friend of mine and a worker at Oak Ridge in the early days of the atomic energy program. This was during the war years when even the name Oak Ridge was practically unknown and there were only vague rumors of vast undertakings somewhere in that vicinity.

My friend was riding on a bus and she fell into a conversation with a man, who volunteered the information that he worked in Oak Ridge. "By the way, said my friend, "what in the world are they making up there anyhow?"

"Lady, he said, "I don't know what it is but I can tell you one thing they could buy it a whole lot cheaper than they can make it."

DID YOU KNOW

Minot's Ledge Light, off Boston Harbor, has never failed since 1860 to guide ships of all Nations with its 1-4-3 beacon, flashing from 85 feet above the sea. Terrific pounding of the waves that, in a gale, rise to 100 feet above the lighthouse, only serve to force the interlocked one ton granite blocks tighter together.

and did you know.....

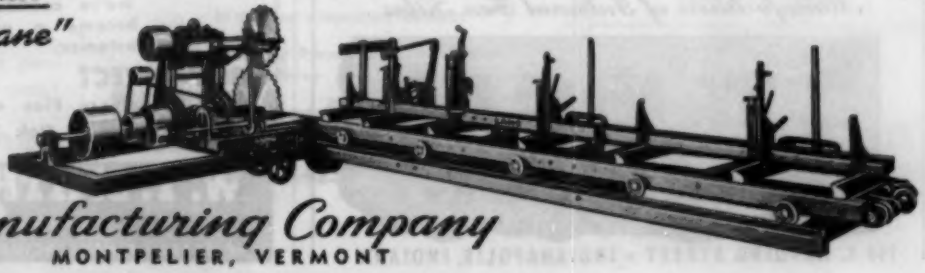
LANE MILLS are built to stand the terrific strain on frame and carriage caused by everyday rough usage in any logging operation. The No. 2 Mill will take this constant wear and tear and produce 1500 to 2500 feet of lumber per hour with a minimum of "down time". Plan to replace old and worn equipment and "gain with Lane". The rugged dependability of Lane Mills means increased logging profits for you. Write for information today!

"You Gain with Lane"

LANE

Manufacturing Company

MONTPELIER, VERMONT



F. E. Colesworthy, Purchasing Agent

CROMPTON & KNOWLES LOOM WORKS

EXECUTIVE OFFICES

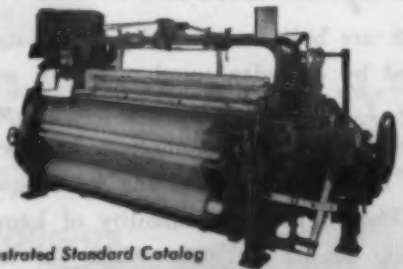
WORCESTER 1, MASS., U.S.A.

*Writes:

"We are glad to state that our three Standard Dry Kilns have given us entirely satisfactory service—the best evidence of this being that we are now installing two more."

Interior, showing multizone automatic controls of temperature, humidity and circulation in Crompton & Knowles' Standard Dry Kilns.

Exterior of this firm's battery of Standard Dry Kilns, illustrating careful end-piled stacking of 4" Sitka spruce. Note Standard's metal doors, installed to effect maximum steam savings.



One of the famous products of Crompton & Knowles, a model "W-3" (worsted) loom.

Write for illustrated Standard Catalog

Manufacturers of Internal Fan Kilns

STANDARD

Engineers and Manufacturers Since 1917

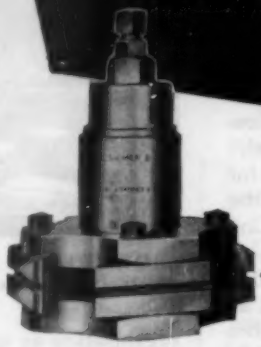
DRY KILN COMPANY

798 S. HARDING STREET • INDIANAPOLIS, INDIANA

SHIMER HEADS GIVE YOU TOP PRODUCTION . . . clean, accurate, fast cutting!

THE SHIMER HIGH-SPEED VISE GRIP MATCHER HEAD

cuts across the entire width of the pattern!



AVAILABLE IN FOUR OR SIX-BIT MODELS with milled-to-pattern bits for high-speed matching, jointing and shiplap production!

There's a Shimer Head or Cutter for every cutting problem, accepted for their dependability and long, profitable service, trusted and approved for their versatility! Shimer products are custom-built for top production and lowest job costs . . . with deliveries you can depend upon to meet your production schedules!

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!

SAMUEL J. SHIMER & SONS, Inc.

70 RACE STREET • MILTON, PENNA.

SHIMER

Here's a Permanent Star

W. T. SMITH LUMBER CO.

HITCH YOUR WAGON TO IT!

For 68 years now, our customers have been buying from us with confidence . . . confident their needs for Southern Pine and Hardwoods could be met by the unbeatable combination of large acreage, selective cutting, modern mills and a will to deliver the goods promptly and properly. Give us a try; we're confident you'll become a permanent customer.

BUY DIRECT

Southern Pine and Hardwood Lumber

Oak Poplar Gum

W. T. SMITH LUMBER CO.

CHAPMAN, ALABAMA

60 YEARS OF MANUFACTURING YELLOW PINE AND HARDWOODS

(Continued from page 13)

tary Regulation 55 to the General Ceiling Price Regulation, GCPR.

UTILIZATION

Major Uses of Wood

Four products comprised 74 percent of all the wood used in manufacture, according to a report, "Wood Used in Manufacture—1948", as issued by the U. S. Forest Service. These were:

Product	Million bd. ft.	Percent
Containers (except cooperage)	4,638	34
Millwork	2,233	16
Furniture	2,139	16
Flooring	1,150	8
All others	3,593	26
	13,753	100

This 13.7 billion bd. ft., made up of 89 percent lumber, 8 percent veneer and plywood, and 3 percent bolts, represents about one-third of the lumber and approximately one-half of the veneer and plywood used for all purposes in the United States. It does not include construction lumber, nor poles, piling, cooperage, crossties, pulpwood, excelsior, mine props, fence posts, fuel wood and chemical wood.

WOOD PULP

Increased Production Possible

Aided by the issuance of certificates of necessity for rapid tax amortization, producers of wood pulp will be able to produce 2,555,000 tons additionally each year, the National Production Authority, U. S. Department of Commerce reported recently.

NPA told the Wood Pulp Producers Advisory Committee that these certificates involve a total proposed investment of more than $500,000,000. Another $500,000,000 worth of construction is proposed in pending applications for certificates.

The committee heard NPA breakdown the anticipated increased production of 2,555,000 tons of wood pulp as follows:

White pulp	1,448,000 tons
Unbleached sulphates	1,006,000 "
Other	101,000 "

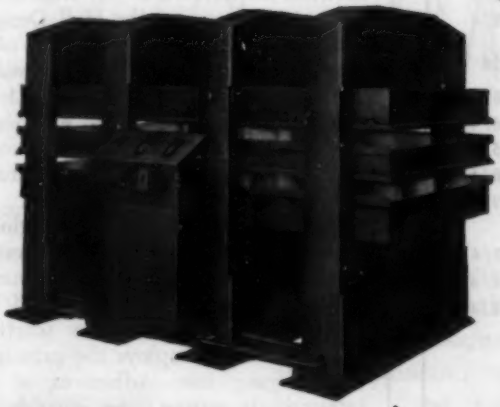
NPA reported that the Controlled Materials Plan is functioning effectively, but warned that maintenance, repair and operating supplies would be "tight" until the second quarter of 1952. However, there will be enough such supplies to keep plants in operation, NPA assured the producers.

RESEARCH

How Many Woods in the Woods?

The above question appeared in a recent advertisement of the Wood Preserving Division of the Koppers Company, Inc., and was immediately explained as meaning *not* how many kinds of trees, but how many kinds of wood can come from the *same* trees. It was explained that in the constant research into the various pressure treatments for wood, depending upon what particular qualities it must have for a given purpose, there have been developed eleven different kinds of wood. They are: 1. Wood protected against *decay* for 30-40 years. 2. Wood protected against *insects* for 30-40 years. 3. Wood that resists *fire*. 4. Wood that's protected against the hazards already mentioned but can be

the modern design



for increasing production of your veneering and laminating operations

The New VB hot press

Check ALL these "Years Ahead" features that give you . . . . .
ACTUAL PRODUCTION ADVANTAGES

The modern design of the "VB" Press gives you savings in glue, veneer and labor. After-drying storage space is eliminated and the smoother surface of panels produced eliminates sanding and finishing costs. Compactly constructed, the "VB" Press requires no pit; giving the user a wide choice of placement for more efficient production.

Write for Illustrated Bulletin

"VB" Hydraulic Presses are available in single, two, three or four openings.

* ALL ENCLOSED FRAME
* ALL WELDED STEAM HEATED PLATENS
* PRE-ADJUSTED WORKING PRESSURE
* COMPACT HYDRAULIC SYSTEM
* AUTOMATIC CONTROL PANEL

V. B Berthelsen ENGINEERING WORKS, INC.
P. O. BOX 1423 • LOCKPORT ROAD • JOLIET, ILLINOIS

KILN DRIED
LUMBER

FOR

immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

Northern Hardwoods

Basswood	4/4 to 6/4
Birch	4/4 to 8/4
Hard Maple	4/4 to 8/4
Soft Elm	4/4 to 12/4

Appalachian Hardwoods

Beech	5/8 to 10/4
Red Oak	5/8 to 8/4
White Oak	5/8 to 8/4

Southern Hardwoods

Ash	4/4 to 8/4
Basswood	4/4 to 6/4
Hackberry	4/4,to 5/4
Sap Gum	5/8 to 8/4
Tupelo Gum	4/4 to 8/4
Red Gum	4/4
Soft Maple	4/4 to 12/4
Sycamore	5/8, to 8/4
Poplar	3/4 to 12/4
Hickory (AD)	8/4
Cypress (AD)	4/4

Mahogany

Honduras	3/4 to 12/4

Walnut

Steamed	5/8 to 8/4

Pine

Parana (Brazilian)	4/4, 5/4

The above hardwoods are in No. 1 Com. & Better Grades

and generally are available in higher grades.

Your inquiry will receive prompt and courteous attention

MONARCH
HARDWOOD
LUMBER CO.
3304 W. Belmont Ave.
Chicago, Ill. Tel. JUniper 8-1234

easily *painted* thereafter. 5. Wood protected against *marine borers*. 6. Wood that is treated, but without *odor*. 7. Wood that is *lubricated*. 8. Wood that sheds *water* and that has slow *moisture pick-up*. 9. Wood with extra *dimensional stability*. 10. Wood that resists *dilute acids*. 11. Wood that's 50-100% *harder* than untreated wood.

Lengthen Ships Planking

A hull designer, a lumberman turned Naval officer, and a forest products engineer have teamed up to perfect a simple idea to effect material savings of critical copper and Navy funds, according to an announcement by the Department of Defense, Office of Public Information.

The idea is to increase the length of planking used on naval vessels and thus reduce the number of fastenings between the timbers. It was originated by A. M. Johnson of the Hull Design Branch, Navy Bureau of Ships, Washington D. C. Practical aspects were worked out by Naval Reserve Lieutenant Joseph L. Noyes, an engineering officer attached to the bureau, and John G. Kuenzel, a forest products engineer in the bureau.

The plan consists of adopting glued scarf—or notched—joints in the specifications for planking wooden minesweepers. A vertical V scarf will be used. It is made by a new scarfing machine which employs the principle of the gang saw. Adhesives of an intermediate setting type, durable in salt water, will be used.

Instead of using only solid members in planking wooden ships, shipbuilders will be encouraged to use the new scarfed material, which can be furnished in any lengths. There is more lumber available for this purpose, since more than 5,000 mills can furnish shorter lengths for scarfing, while only about 50 mills can furnish longer lengths.

Lumber Specification Study

The Army Corps of Engineers is conducting a study of military specifications for lumber and lumber products to bring them closer to commercial standards. The study is intended to reduce waste through better utilization.

The study covers one thousand separate specifications for fabricated items to determine the lowest feasible grade and alternate species for emergency use. The use of laminated lumber in critical sizes and grades, and the existing systems of stockpiling and storage, are being studied.

ARKANSAS OAK FLOORING COMPANY
Pine Bluff, Arkansas
P.O. Box 858 Phone 4300

Semi-finished

SOUTHERN HARDWOOD FURNITURE DIMENSION

Glued-up Panels
Core Stock
Drawer Sides & Backs
Mouldings

"Our 36th Year"

We Solicit Your Inquiries.

Mills at:
Pine Bluff, Arkansas
Alexandria, Louisiana.

Save Time With Our Fine Oak Dimension Stock

- KILN DRIED
- FLAT
- GLUED-UP
- SOLID
- STRAIGHT
- SURFACED

Furniture manufacturers make savings when they use Memphis Hardwood Flooring Co.'s semi-finished dimension stock. No time wasted means lower costs and better profits.

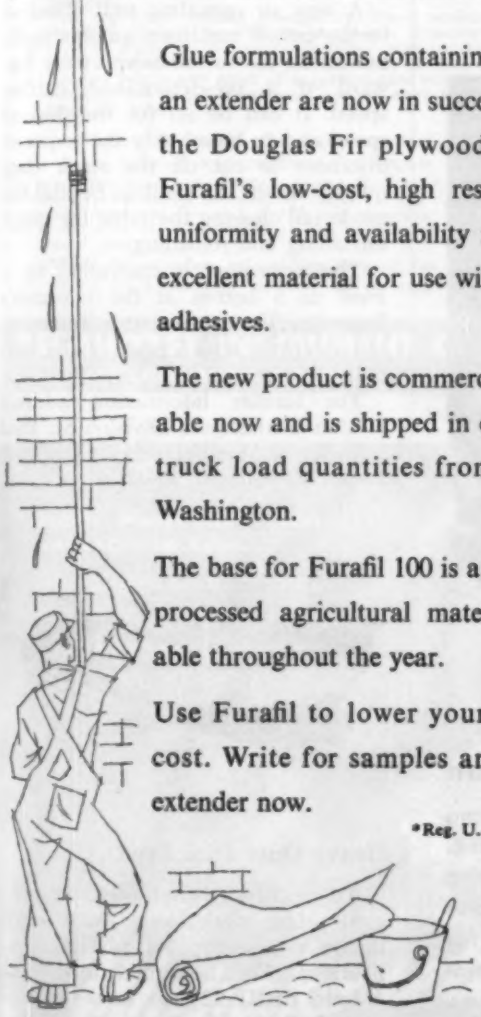
Send us your specifications for quotations

Chickasaw Brand Oak Flooring
Pre-finished and unfinished
Treads—Risers—Thresholds

MEMPHIS
HARDWOOD FLOORING CO.
Since 1905
1591 Thomas St. • Memphis, Tenn.

furafil* 100

NEW LOW-COST GLUE EXTENDER



Glue formulations containing Furafil as an extender are now in successful use in the Douglas Fir plywood industry. Furafil's low-cost, high resin content, uniformity and availability make it an excellent material for use with phenolic adhesives.

The new product is commercially available now and is shipped in car load or truck load quantities from Tacoma, Washington.

The base for Furafil 100 is a chemically processed agricultural material, available throughout the year.

Use Furafil to lower your glue line cost. Write for samples and try this extender now.

*Reg. U.S. Pat. Off.

The Quaker Oats Company

QO CHEMICALS

CHEMICALS DEPT.

342D THE MERCHANDISE MART • CHICAGO 54, ILLINOIS
P. O. BOX 4376, DEPT. 21 • PORTLAND 8, OREGON

MID-STATES LEADS IN Container Wire

★ Across the nation, Mid-States is recognized as *headquarters* for container wire. Mid-States designed and manufactured the first industrial container wire ever produced . . . set the pace as the industry grew . . . and is still first with the answers as problems arise in the handling and shipping of merchandise.

Mid-States' know-how and consistent high product-quality win friends and keep them.

Do you need stapling, box-binding, handle or loop wire? Do you need stitching wire, stitching machines, tying wire or tying machines? *Whatever* your packaging requirements might be, it will pay you to do business with Mid-States—the leader for over a half century.

MID-STATES STEEL & WIRE COMPANY

MID-STATES
STEEL & WIRE COMPANY
CRAWFORDSVILLE, INDIANA
JACKSONVILLE, FLORIDA

NEW

Products . . . . processes
equipment . . . . methods
materials & developments

New 6-Inch Jointer

Heston & Anderson Dept. W, Fairfield, Iowa, announces their '52 Model 6" Jointer. It has a narrower throat opening, a fence that may be set at an angle across the cutterhead for shearing cutting and for jointing short stock safely. The guard turns under table when rabbeting wide stock and is immediately returned; no adjustments necessary. Table 60-in. over all; rabbets ⅝-in. providing depth cutting often needed.

Unit Speeds Cutting Operations

A new air operating unit attached to the cut-off machines automatically moves the saw or abrasive cutter forward at a pre-determined cutting speed. It can be set for the desired speed and to travel only the required distances to cut off the stock then quickly return to a position behind the guide rail clearing the table for quick unloading and reloading.

The movement is controlled by a lever or a button at the operator's finger tip. The movement is limited to but one cycle with a press of the button.

For further information address Heston & Anderson, Division St. Paul Foundry & Manufacturing Company, Dept. W, Fairfield, Iowa.

In the long run they still cut clean and fast

While they're fresh, most abrasive belts cut clean and fast. But it's time that tells them apart. Long after most belts have shed or become loaded, you'll find BEHR-MANNING belts still cutting fast and steady. Of course belt and cover changes cost you time and money—so why not use the abrasive product that continues to produce long after others are discarded. Slip on a BEHR-MANNING belt and test it against any other. You'll be able to tell which is the BEHR-MANNING brand by the better results in the long run!

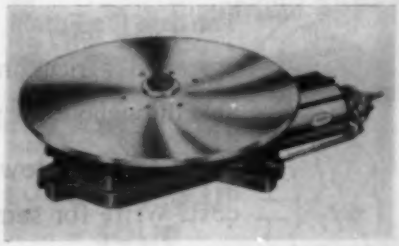
RESINIZED DURITE® Paper
RESINIZED ADALOX® Paper
RESINALL GARNET Fibre
RESINIZED METALITE® Cloth

Prove to yourself the increased production and economy of any of these fast-cutting, longer-lasting coated abrasives. Our local Field Engineer will be happy to make recommendations. So just drop us a line telling when. Address Dept. WP-2.

BEHR-MANNING
CORPORATION
division of NORTON Company

COATED ABRASIVES
SHARPENING STONES
PRESSURE-SENSITIVE TAPES

Main Office and Plant: Troy, N. Y.
For Export: Norton Behr-Manning Overseas, Inc.



Heavy Duty Dial Feed

An electrically controlled, air-powered rotary work feeder with a 22" diameter table top, has just been announced. The new dial feed table (Model BRET-22) can be set to position 4, 6, 9, 12, 18 or 36 stations. The 22" diameter table will position quickly and accurately loads up to 1000 lbs. Cushioned air power gently eases the table into position where it is locked by an air cylinder.

The new heavy duty work feeder is a companion unit to the 10" diameter light duty rotary work feeder announced by Bellows some months ago. Full details may be obtained by writing The Bellows Co., Dept. W, 230 West Market Street, Akron 9, Ohio.

Model RC-1

SEE HOW THIS DELMHORST MOISTURE DETECTOR SAVES YOU TIME AND MONEY!

- Enables you to make rapid moisture tests of any wood product —timber, poles, lumber, or finest veneers—without loss of material.
- You can know exactly whether the wood contains the right moisture content for storage, process or shipment.
- Quickly gives you the precise moisture content, distribution or gradient of moisture within a single piece of wood or kiln load.
- Enables you to sort stock of equal moisture content for loading the kiln and to tell whether or not the stock is ready to come from the kiln.

". . . has paid for itself several times."

says Texarkana Lumber & Supply Company

"We have been using your moisture detector both inside and outside of our dry kiln. By determining the moisture content of the lumber before planing, we are able to prevent the stock from bluing or molding in the bins after the stock is stored in the finish sheds. In this way the instrument has paid for itself several times."

Write for complete information or send for a Delmhorst Model RC-1 Moisture Detector on 10 days FREE trial.

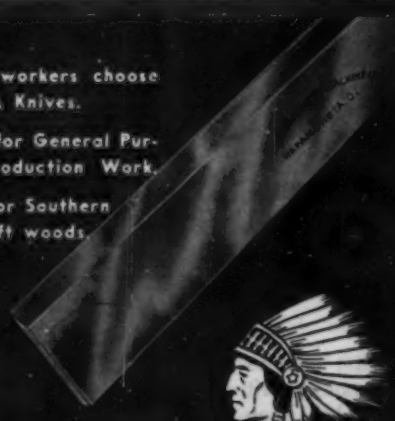
DELMHORST INSTRUMENT COMPANY

605 CEDAR STREET • BOONTON, NEW JERSEY

Quality Woodworkers choose WAPAKONETA Knives.

"BIG CHIEF" for General Purpose High Production Work.

"MOHAWK" for Southern and similar soft woods.



For dependable high speed production use...

Wapakoneta BIG CHIEF and MOHAWK

HIGH SPEED KNIVES

THE WAPAKONETA MACHINE CO.

WAPAKONETA, OHIO

INCORPORATED 1891

American's THE BUY!

IMMEDIATE DELIVERY!

Cash in on today's lumber profits with highly-efficient, modern American equipment

★ **MORE ACCURATE CUTTING** proved over nearly half a century of use.

★ **FASTER SAWING** with American's high-tension feed.

★ **GREATER SAFETY** with American's great protection features.

★ **LONGER LIFE** and lowest upkeep with American's rugged construction.

Thousands of Experienced Lumbermen Rely on The Great American Saw Mills, Edgers, Trimmers, Cut-off Saws and Shingle Machines.

	Headblock Opening	Carriage Length
American No. 1 Mill	38"	16'
American No. 3 Mill	44"	20'
American Porta-Mill	34"	10'

Write Today for Details About American —

Send for your copy of American Catalog A50— gives details about the great American mills — choice of leading lumbermen for two generations.

AMERICAN SAW MILL MACHINERY CO.

Established 1903

HACKETTSTOWN, N. J.

"American" Saw Mills and "Monarch" Woodworking Equipment

See how
MOISTURE
REGISTER
saves you
money!

MOISTURE REGISTER Instruments

- Cut down costly finished product rejects.
- Make sure your lumber meets moisture specifications for grade.
- Reduce customers complaints and insure consistent production quality.
- Save man hours because Moisture Register tests in seconds. Oven tests take hours.
- Save freight costs. You don't pay for excess moisture.
- Save on overhead. Wet lumber increases tool maintenance.

Moisture Register Model K2D in use at Mans'on House Furniture Company, Los Angeles.

Moisture Register instruments are simple to use. They show you when wood is exactly right for most efficient cutting, bonding, fitting and finishing.

Models priced from $60 to $148.50 both radio frequency and needle type. Test 80 wood varieties, wood products, wood waste and plaster, down to 0% in three seconds or less. Rugged, portable. One year guarantee. Write for complete information on Moisture Register instruments specially designed for the textile, leather, paper, wood and wood products industries.

ELECTRONIC MOISTURE REGISTER

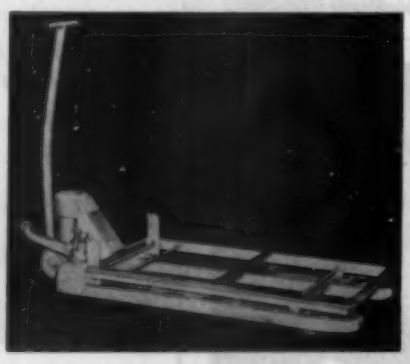
Mfd. by Moisture Register Co.
1510 W. Chestnut St., Alhambra, Calif.

10-day free trial on any model. Write today, outlining your requirements. No obligation.

Six-Foot Band Mill

A new 6-foot Band Mill is announced with motorized top saw guide, controlled by a reversible foot switch, which can be located at any convenient position for sawyer or offbearer. It also has a motorized wheel lift for raising and lowering the top wheel, controlled by a two-way push button switch located at offbearer's side of main housing.

This Band Mill is built for 12-in or 13-in saws. It has a deep structural bed, self-aligning bearing hangers, and large diameter shafts. For complete information, write: the Wheeland Co., Dept. W, Chattanooga, Tennessee.



Skid Adapter

A new skid adapter that enables conventional hand pallet trucks to lift and handle skid platforms has been introduced by The Raymond Corporation, Dept. W, Greene, N. Y. Conventional pallets are low and have boards at both top and bottom, the company points out. Thus, a special truck with a lowered height of only 3¼" is required. Skid platforms, on the other hand, are usually higher, have no bottom boards and require the use of a platform truck having a 6" or more lowered height.

By furnishing a hinged superstructure that can be raised out of the way when handling pallets or lowered into position when handling skid platforms, the Raymond Corporation has enabled a single truck to be used for handling both types of equipment.

Handle Dry Kiln Doors
SINGLE-HANDED?

You can do it with
The Universal DOOR CARRIER

One man—with one hand—and a Universal Carrier can open or close a kiln *in a few seconds.* And the carrier makes your doors last longer!—by gentler handling, without twist or strain. Automatic locking gives you good tight closures every time.

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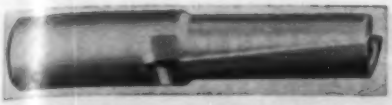


Carbide Tipped Router Bit

A new helical Router Bit is so designed that the carbide cutting edge has a compound radial and helical angle that gives a downward shearing cut, requiring less effort in the cutting and longer life to the tool. The particular cutting action developed prevents any tendency of the laminated plastic to lift away from the core.

Stocked in 1/4", 5/16", 3/8", 7/16" and 1/2" shank sizes, these Router Bits are available for immediate delivery. Direct inquiries to North American Products Company, Dept. W, 3100 West Cherry Street, Milwaukee, Wisconsin.

Bulletin Describes Fork Truck

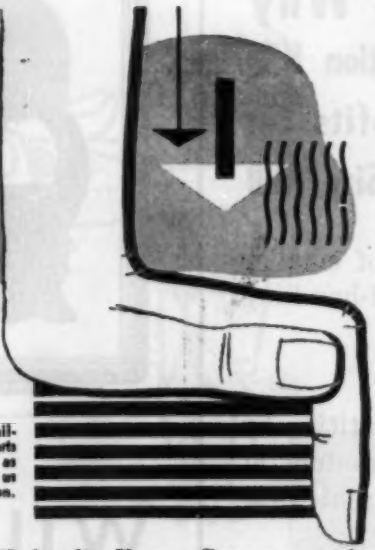
An eight-page Bulletin 1327, released by Baker Industrial Truck Division of The Baker-Raulang Co., Dept. W, 1250 W. 80th St., Cleveland 2, Ohio, shows all the important construction and operating features of the new Baker type FS 2000 pound fork truck.

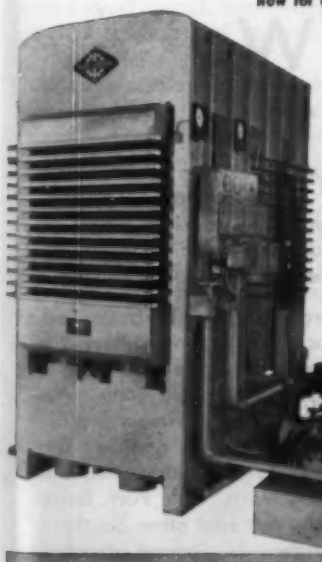
Illustrations are used for a closer look at the truck's functional design features. Dimensions and specification sheets contain complete engineering information on the truck. Action photos illustrate the Baker FS fork truck at work, making handling jobs up to 2000 pounds easier and more economical.

FJELLMAN

accurate hi-pressure
plus
controlled platen heat

All types immediately available. Complete service, parts and engineering as near as your phone. Call or write us now for detailed information.





Fjellman Hydraulic Veneer Presses are the high standard for the woodworking industry. Internationally known for precision craftsmanship, these rugged presses bring new economy to American plywood processors—price and production-wise. Side or end loading; use high or low pressure steam. No special footings for 1 to 5 opening presses. Complete range of sizes from 12" x 12" to 8' x 19' and openings from 1 to 20.

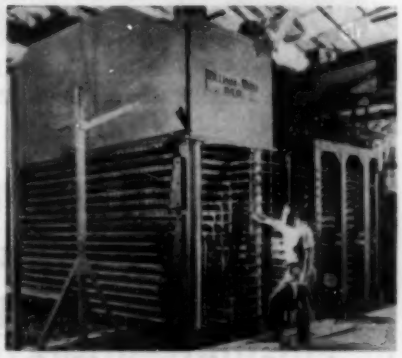
Fjellman presses are steel-frame construction for greatest rigidity, minimum yield, and light floor loading.

Platens are of Swedish firebox carbon steel, polished and ground for fine product finish. Parallel guides insure accurate closing and alignment under pressures to 2000 PSI.

WRITE FOR GLUE SELECTION GUIDE

Fjellman & Winther Company.

312 HENDERSON AVENUE PHONE 3-9112 JOLIET, ILLINOIS



"Largest" Plywood Hot Press

What is said to be the largest plywood hot press ever built in America, insofar as can be determined, has been installed at the Plylock plant of M and M Wood Working Company in Portland, Oregon. Weighing 250,000 pounds, not including its' loading and unloading devices, the mammoth press occupies nearly two stories, its' lower workings and base extending into a specially constructed cellar. It was manufactured by Williams-White Company of Dept. W, Moline, Ill.

This new press is designed to produce a maximum of 200,000 square feet of plywood a day in panels as large as 5 by 12 feet bonding 16 panels at a time.

Electro-Unit Drive Moulders

The Dependable Machine Company, Inc., Dept. W, Greensboro, N. C., has announced the release of a new twelve page Bulletin C-12 featuring three models of new, low priced, high production moulders manufactured in 4, 6, and 8-in. sizes. The manufacturer claims many new features in these machines not found in any other moulder regardless of price.

These moulders are especially designed for quick set-ups with their exclusive cartridge type spindles. The new Cartridge Spindle Units make it possible to set-up, grind, joint, and pre-test all patterns in the grinding room. A change in cartridge can be made in as little time as one minute.

Small Moore Direct Gas-Heated Kiln at J. W. Black Lbr. Co., Corning, Ark., drying oak and other hardwoods.

4 Good Reasons Why

The Moore Cross-Circulation Kiln Can Help Increase Profits for the Small and Medium Size Mill

1 Gives quicker turnover of smaller inventory—reduces yard-handling and overhead costs

2 Helps you meet competition by producing a better product at lower cost—eliminates air-drying degrade

3 Opens up new market, enabling you to furnish lumber seasoned to customer's specifications

4 Kiln drying at the sawmill eliminates need for drying and handling at customer's plant—greater saving in shipping costs

Let us show how the Moore Automatically Controlled Drying System can increase profits at your plant. There's no obligation, but write today.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE, FLORIDA · BRAMPTON, ONT., CANADA · VANCOUVER, B. C., CANADA · NORTH PORTLAND, OREGON

Tannewitz
HIGH SPEED BAND SAWS

Saws faster, smoother and easier than conventional band saws. Regularly increase production from 50% to 100% with consequent reduction of costs. Built by sawing machinery specialists. Write for circular.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN

WILLOW

IS FEATURED IN '52

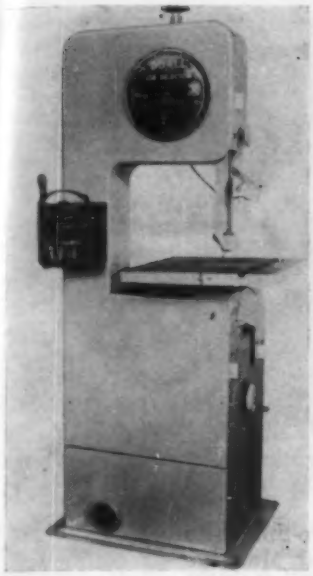
FOR
FURNITURE
CABINETS
PANELING
CASKETS
CORES

Our three mills are located in the Mississippi, Atchafalaya and Red River basins of Louisiana which produce the finest Willow in America.

Large and well assorted stocks of this fine willow are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 4/4" to 8/4" or include in mixed cars with Port Barre white ash and other Southern Hardwoods. Prompt attention will be given to all inquiries.

The Port Barre Lumber Industries, Inc.

Manufacturers of Southern Hardwoods
Port Barre, La.



Versatile Band Tool Machine

The DoAll Company, Dept. W, Des Plaines, Ill., offers a 16-in. throat x 12-in. thickness capacity light duty bandsawing-filing-polishing machine of unit welded steel construction. This model, SFP, provides both high and low tool speed ranges—without changing belts, pulleys or motors. Speed is infinitely variable by handwheel control and two-speed geared transmission from 50 to 300 f.p.m. and from 860 to 5200 f.p.m. This unusual range permits most efficient sawing, filing and polishing, and the use of correct speed, depending upon type and thickness of material, prolongs tool life.

It is an exceptionally adaptable machine capable of conventional metal sawing, high speed non-ferrous sawing and light gauge friction sawing. Its versatility recommends it for experimental and model departments and for light manufacturing involving a variety of materials that require an extensive tool speed range for efficient machining.

Swiss-Made Asko Machine

The Woodworking Precision Machinery & Tool Co., Inc. is introducing in the United States the Swiss-made Asko Machine. It is a new double-cutoff saw which operates vertically. The saws do not travel back through the piece thereby eliminating clamping of the stock and increasing production.

The dust system is built into the Asko. Cut-offs fall in front of the machine, thus eliminating blocking of the exhaust system. More information may be obtained by writing to the Woodworking Precision Machinery & Tool Co., Inc., Dept. W, 224 Fifth Avenue, New York City.

Rud-O-Matic Slackline Puller

Long used in the construction field as standard equipment on cranes and buckets, the Rud-O-Matic Tagline has just recently been adapted to use in the lumbering industry as a slackline puller. Developed by the McCaffrey-Ruddock Tagline Corporation of Dept. W, 2131 E. 25th St., Los Angeles 11, California, the Rud-O-Matic Tagline is said to increase the crane's log loading efficiency as much as 50% by the installation of a Rud-O-Matic Slackline Puller. Easily mounted on boom or gantry frame, it returns the log

Break that Strangle-Hold on your Wood Gluing Production!

Investigate...

Thermatron

HIGH FREQUENCY GENERATORS AND EQUIPMENT

Seen in the jig is an entire cabinet assembly to be glue-set electronically by THERMATRON in only 30 seconds. The bond is stronger than the wood itself by actual test! Hidden in the background is the 3 KW generator which masterminds this job.

THE MODERN MIRACLE of dielectric wood bonding is fast making the "glue and clamp" method obsolete. THERMATRON is a pioneer in dielectric heating equipment . . . can show you how to shave production time to seconds, save on labor, reduce floor space and expensive rejects . . . yet produce lasting bonds stronger than the wood itself.

THERMATRON supplies the complete installation, both generators and necessary jigs, under one contract and one responsibility. Often the immediate savings in production effected by THERMATRON equipment more than offset the initial installation cost.

Write us today for complete details without obligation . . . and ask for our instructive bulletin No. W-2.

HIGH FREQUENCY GENERATORS AND EQUIPMENT FOR ELECTRONIC GLUE DRYING • BENDING • EDGE GLUING • VENEER BONDING

Standard stock generators available from 500 Watt to 20 KW output, operating on 110 or 220 volt lines. Larger size generators up to 100 KW can be supplied for larger requirements.

*T. M. Reg. U. S. Pat. Off.

Thermatron division

RADIO RECEPTOR COMPANY, Inc.

Sales Dept. 251 W. 19th St. New York 11, N. Y. • Factory 84 N. 9th St. Brooklyn 11, N. Y.

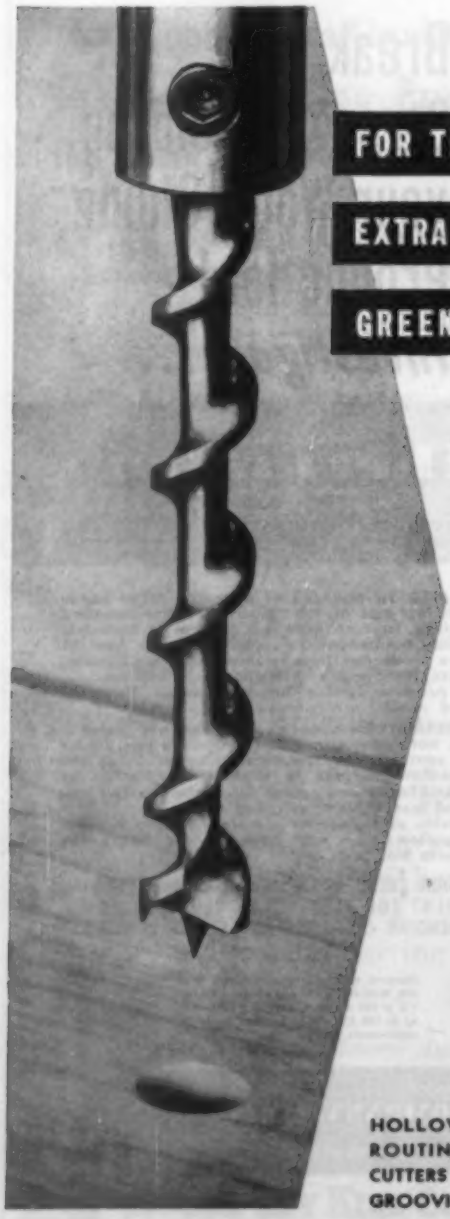
tongs to the ground immediately and reduces the time loss between lifts.

Most tongs are not heavy enough to rotate the loading drum and then unwind the drum. So when the log is unfastened and the brake in the loading drum released the tagline automatically pulls the loading line from the drum and lowers the tongs.

Safety Scoreboard

A new safety record sign has been designed to act as a constant reminder of days worked without a lost time injury, and it conveys the thought that responsibility rests with each and every employee. It keeps up daily interest and makes for a well informed organization.

The IPCO Safety Scoreboard is 20" wide by 30" high, large enough to be seen at a distance. Attractively finished with green background and white letters. Features two blackboard finish panels enclosing the word Days so that it may be kept up to date by marking in with chalk. Full information may be obtained by writing to Industrial Products Company, Dept. W, 3048 N. Fourth St., Philadelphia 33, Pa.



FOR THE TOUGH JOBS...

EXTRA STURDY, SOLID-CENTER

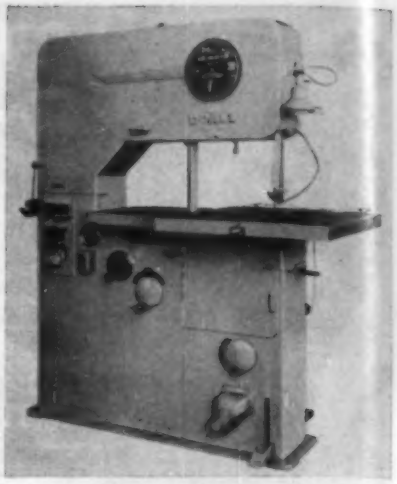
GREENLEE MACHINE BITS

On these boring jobs where you need an unusually sturdy tool you'll find the GREENLEE Solid-Center Machine Bit an outstanding performer. Its husky stem, or solid center, is a round section continuing from point to shank and increases in size toward shank . . . allowing proper clearance, yet a heavier body where strain occurs. Its accurate cutting edges are of extension-lip pattern with two cutters. Write for facts. Greenlee Tool Co., 2152 Herbert Avenue, Rockford, Illinois.

TOOLS FOR CRAFTSMEN

GREENLEE

HOLLOW CHISELS • MACHINE BITS • DRILLS
ROUTING BITS • MULTI-SPUR BITS • PLUG
CUTTERS • COUNTERSINKS • MAKERS OF TECO
GROOVING TOOLS FOR TIMBER CONSTRUCTION



Wide-Speed-Range Band Machine

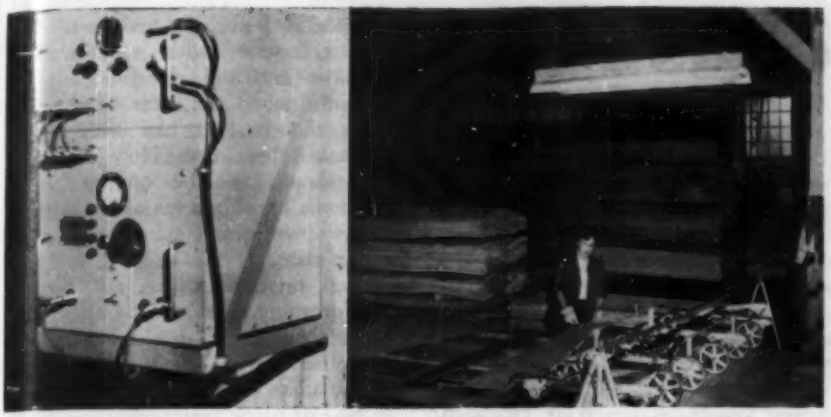
The DoAll Company announces a new general purpose Contour Sawing Machine designated V-36-3. This machine takes continuous saw, file or abrasive bands up to ½-in. in width. It features a three speed transmission and speedmaster drive providing variable tool velocity ranging from 25 f.p.m. to 6,000 f.p.m. With this speed range it performs all types of conventional metal sawing or filing, high speed cutting of non ferrous metal and composition materials and light gauge alloy friction cutting.

This machining adaptability is incorporated in a relatively light unit-welded steel frame 81" high requiring only 40" x 76" floor space. This represents a great savings in cost as well as floor space compared with two or more machines that would be required to equal this single machine's versatility resulting from its wide speed range. For additional information write The DoAll Company, Dept. W, Des Plaines, Illinois.

WOODICTIONARY

BARKER

(1) A logger who peels bark.
(2) A machine to peel bark.



Automatic Moisture Detector

The first demonstration in a plywood mill of a new automatic continuous moisture detector was held in the Olympia, Wash., plant of the St. Paul and Tacoma Lumber Co. where the device has been in action since September, 1951.

The new moisture detector was developed by the plywood manufacturers' Plywood Research Foundation and is being marketed as the Laucks Sentry by the Technical Instrument Division, Laucks Laboratories, Dept. W, 4441 Stuart Bldg., Seattle 1, Wash. The device, already proven after a year's service in furniture manufacture, automatically marks or rejects stock at/or above any given moisture content without slowing down production.

Although the Sentry was perfected by the manufacturers' research organization for use in the plywood industry, it will have wide applications in all wood products manufacturing operations and other unrelated industries where moisture is a production problem.

You get more Features, News, and Stories in WOOD combined with WOOD PRODUCTS than any other industry magazine—Subscribe now. 3 years $5.

MANSFIELD
Dimension
SERVICE

Check these 5 points . . .

1. **LOGS** . . . from Mansfield's perpetual yield timberlands insure our raw material.
2. **LUMBER** . . . selected from 40,000,000 ft. of Hardwoods and Pine produced yearly in Mansfield's two bandmills.
3. **CRAFTSMANSHIP** . . . modern machinery, trained manpower, experience and know-how.
4. **PRODUCTS** . . . **though specializing** in glued-up panels and moulded stock we are equipped to handle your entire Dimension Stock requirements.
5. **SERVICE** . . . dependable and set up to meet your most exacting requirements.

Send us your specifications today for all your Dimension needs. Prices, samples and delivery dates will be promptly furnished.

MANSFIELD HARDWOOD LUMBER COMPANY

P. O. Box 91 **Shreveport, La.**

Band Mills: Zwolle and Winnfield, La. . . . Dimension Plant: Zwolle, La.

All Northern Hardwoods

Lumber
Veneers
Plywoods

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NORTHERN HARDWOOD VENEERS, Inc.

Butternut • Wisconsin

Hundreds of applications prove HASSALL annular threads have GREATER HOLDING POWER

Annular threads are used where greater grip is a "must"—in industries like shoe manufacturing, asbestos siding, underlay flooring for linoleum, pallet manufacturing, boat building, etc., etc. The stronger holding power of these threads should solve many a wood fastening problem, maybe yours! Save, too, by using fewer nails. Write for samples.

JOHN HASSALL, INC.

409 Oakland St., Brooklyn 22, N. Y.

Hassall ESTABLISHED 1850

Foreign Woods . . .

by GEORGE LAMB

COJOBA
Cojoba arborea
Leguminosae (Pea) Family

There are a number of species of COJOBA growing in the West Indies and from southern Mexico to northern South America. The largest and best known is Cojoba arborea. It is the only one of any commercial value. In Honduras it grows to a height of 100 feet. Elsewhere it is less than 60 feet high but attains a stout bole up to 4 feet in diameter.

The heartwood is dark red or reddish brown, sometimes with narrow stripes of deeper color. Sapwood is nearly white or grayish. It is hard and heavy. Specific gravity 0.80. The grain is often roey and the texture is medium to coarse, with good working qualities and high durability. It is a beautiful wood and takes a fine polish.

In the past it has been called Bahama sabicu in the New York trade but should not be confused with Lysiloma latisiliqua which is the wood best known as sabicu.

Other names:

Red tamerind	Jamaica
Moruro rojo, sabicu	Cuba
Cojobana	Puerto Rico
Collier	Haiti
Canamazo, coralillo	Mexico
Red or black tamerind, John Crow	British Honduras
Colo de mico, frijol de mico	Guatemala and Honduras
Coralillo	Panama

KATERALLI, BLACK—
Eschweilera sagotiana

Lecythidaceae (Lecythia) Family

This family includes 17 genera and about 200 species, including some large tropical trees. Albarco and Brazilnut belong to this family. There are about 80 species of Eschweilera in the American tropics. E. sagotiana is the principal species that grows in British Guiana.

The trees frequently attain a height of 100 feet and over 2 feet in diameter. Buttresses are small or absent. BLACK KATERALLI produces 12" squared timbers up to 40 feet in length and round piling 60 feet long.

The heartwood is light brown with a pinkish tinge, becoming light grayish brown or light to medium reddish brown. The sapwood becomes yellowish after exposure. The grain is

For the Really *Tough* Jobs . . .
MEREEN-JOHNSON No. 441
Heavy Duty Gang RIP SAW

- Six *power driven* feed rolls
- Up to 125 HP . . . 12" or 19" saw space
- Variable feed drive up to 300 ft. per minute

RUGGED, powerful—made for fast production on the most difficult gang ripping jobs. Three pairs of power-driven feed rolls really take hold of any class of stock. Kick back stops between infeed rolls eliminate accidents. An exclusive beam type mounting makes the arbor unusually smooth running . . . and this entire arbor assembly is adjustable. Automatic hopper feed is available as an extra.

For complete specifications, write for Bulletin No. 441.

FOR LIGHTER RIPPING JOBS...
MEREEN-JOHNSON
GANG RIP SAW NO. 440

Lighter duty than the No. 441, this machine for sawing cleats can also be used for many other purposes. *Bulletin No. 440 contains the complete data.*

Mereen-Johnson MACHINE COMPANY
4401 LYNDALE AVENUE N. • MINNEAPOLIS 12, MINNESOTA

WOODICTIONARY

DONKEY DOCTOR
One who maintains and repairs donkey engines.

straight and the texture fine and uniform. The wood is strong, hard and heavy. Specific gravity 0.75 to 0.86.

BLACK KATERALLI has no possibilities as a cabinet wood but has distinct possibilities for keels and underwater structures, construction timbers, flooring and marine piling. In fact, it rivals greenheart in resistance to marine borers. Two other species that grow in Surinam known as Manbarklak are superior to greenheart.

Other names:

Mata casada.....Panama
Guatequero .....Venezuela
Wena kakeralli....British Guiana
Kakeralie, manbarklak,
toledo wood.....Surinam
Mata mata.....Brazil

Other woods called KATERALLI:

None

FRIJOLILLO—
Pseudosamanea guachapele
Leguminosae (Pea) Family

This is one of the few genera that has but a single species. The tree occurs in Guatemala and Salvador and southward to Venezuela and Ecuador. Only in Ecuador is it well known and frequently used, often for shade in coffee plantations.

In Honduras FRIJOLILLO grows in the dry areas and seeds in pastures and abandoned fields. It is fire resistant, grows rapidly and develops a large well-formed bole with small or no buttresses.

The heartwood is light orange brown when freshly cut, becoming a rich brown with a golden luster. The sapwood is thin and whitish. The grain generally is interlocked to a pronounced degree, producing a conspicuous stripe when cut on the quarter. The texture is medium to coarse and uniform. It is of medium density, strength and weight. Specific gravity 0.56 to 0.62. The wood works easily, drys rapidly but has a tendency to warp.

It has possibilities as a cabinet wood, especially in the form of veneer.

Other woods called FRIJOLILLO:

Adipera sp.....Salvador
Cojoba sp.....Mexico
Hebestigma cubensis.....Cuba
Isandrina sp.....Cuba
Lonchocarpus sp.....Cuba
Lucaya chloriophylla.....Cuba
Poeppigia procera.....Salvador
Sophora sp.....Mexico
Vatairea sp.....Guatemala.

VACO—*Magnolia sororum*
Magnoliaceae (Magnolia) Family

Magnolia is one of the relatively few genera of North American trees that also is found in the tropics. It is found in the West Indies, central and northern South America. It is a medium to large tree, ranging in height from 70 to 100 feet and with a diameter from 3 to 5 feet. Buttresses are small.

The wood resembles the darker shades of the yellow poplar that grows in the United States. The heartwood is olive green when freshly cut, becoming yellowish brown to greenish brown with a purple tinge on exposure. Darker streaks are common. The sapwood is white to greenish. The grain is straight, fine and uniform. In general it has the characteristics of yellow poplar but is somewhat heavier. Specific gravity 0.40 to 0.58.

The wood has been imported for experimental purposes but there appears to be some disagreement as to its availability. If it is sufficiently available it should make an acceptable substitute for yellow poplar.

Other woods called VACO:

None

VACA, Palo de vaca (British Honduras) is ZSCHOKKEA sp.

OUT IN THE SHOP

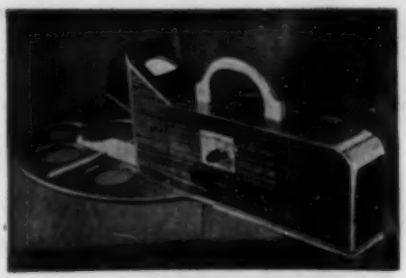
MOULDER METHOD

WHEN RABBETING DOOR STILES AT THE MOULDER, the automatic-stop rabbeting attachment is especially useful. This mounts and controls the rabbeting cutters by a cam-like arrangement so that they jump into contact with the work-piece, make a predetermined length of cut, and then automatically jump out of contact to leave a groove of the proper length to accommodate panels, or glass, or both.

WOODICTIONARY

FULL-CELL PROCESS

A process for injecting preservatives or chemicals into wood in which a vacuum is drawn to remove air from the wood before admitting the preservatvies.



The Hedden Metal Detector

The Model D.C. II Hedden Metal Detector is being extensively used in the lumber industry. This 10 pound instrument can locate a six penny nail in the heart of a 20-in. diameter log. The unit works both horizontally and vertically and operates on batteries. It is easy and simple to use and operate. The detector head is designed so that an exact fix indicating where the metal is located in the log or wood is quickly obtained. The Hedden Metal Detector is a money saver in saws, veneer knives and downtime. Write for complete information today.

Hedden Metal Detectors
Dept. W
3329 Liberty Avenue
Pittsburgh 1, Pa.

To Round Out . . .

VIRGESON'S

ONE STOP

SERVICE

We Now Add *Plywood*
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HELP WANTED: A midwestern furniture factory, long established, making high quality goods, needs an experienced time study man for steady employment. In answering please give qualifications, references and salary expected. Box A-179, WOOD & WOOD PRODUCTS.

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H. E. BOVAY, JR.,
CONSULTING ENGINEERS
ESPERSON BUILDING
HOUSTON 2, TEXAS

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WANTED: Superintendent Furniture Dimension Plant. Prefer one experienced in the manufacture of both semi-finished and fully machined stock from Southern Hardwoods. Location in the South with old, well established company. Advise as to experience, age, marital status and salary expected. Position available within about 90 days. Write Box A-177, WOOD & WOOD PRODUCTS.

WANTED: Young man with some wood-working experience interested in production. Should have engineering or technical background. Excellent opportunity to assume a key position and develop into executive with furniture company. Write Box A-178, WOOD & WOOD PRODUCTS, stating qualifications, present employment and salary.

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POSITION WANTED: as superintendent in veneer plant or box factory. Thorough knowledge of all phases of manufacturing. Many years of experience. References. Write Box A-180, WOOD & WOOD PRODUCTS.

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HIGH QUALITY ROTARY CUT
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WOOD SALUTES

(Continued from page 25)

Today Fred Karlen is managing director of the Eatonville Lumber Company, and the Karlen-Davis Company, and president of the Timber Development Co. He is, also, director of Wheeler-Osgood Co., Tacoma; director of Nalleys, Inc., Tacoma; director of the Puget Sound National Bank, Tacoma; director of the Industrial Conference Board, Tacoma; Tacoma Vegetable Oils, all of Tacoma, Wash.

Karlen, in addition, is vice-president of the West Coast Lumbermen's Assn.; past president of the Tacoma Lumbermen's Club; a director of the National Lumber Manufacturers Assn.

He serves as a member of the trustees for the College of Puget Sound and for Annie Wright Seminary.

Fred Karlen has contributed generously of his time and abilities through the years to further both the industry in which he works and the community where he lives.

BARREL & BOX & PACKAGES

Wood Packing Pays

Barrel and Box and Packages, is a section of Wood combined with Wood Products, devoted to serving the best interests of the wood container industry.

A "ZIP-LIFT" electric hoist is lowered into a wirebound box for shipment.

BOXES are assembled in only a few minutes. Most of the nine different sizes are shown here.

Saves-with Prefabricated Boxes

DISCOVERS MAKING OWN CONTAINERS IS EXPENSIVE PROCESS

The 70-year-old P. & H. Harnischfeger Corp. of Milwaukee is another company that has discovered that making its own shipping containers is an expensive process.

In less than a year, the company claims that it saved upwards of $10,000 by discontinuing making its own boxes for its "Zip-Lift" electric hoists and instead packing them in prefabricated wirebound boxes.

G. A. Schmus, traffic manager of the company, said that the revolutionary change resulted in an immediate reduction of two-thirds in initial container costs and an over-all packing economy of at least one-third. The conversion to wirebound boxes was made in the Spring of 1950, he said, and the $10,000 and more savings were recorded between then and the end of the year.

Furthermore, Schmus said, the change completely eliminated shipping damage, which had been experienced when the company made its own containers.

The wirebound boxes are delivered with the one-piece wirebound "mats" and the box ends bundled separately so that they can be stacked in a minimum of floor space and ceiling-high, if desired, close to the packing area.

Assembling a box is quick and easy. A one-piece wirebound "mat" that comprises the four sides of a box is folded into shape and then fitted into a jig while the ends are inserted into position without the use of nails. The assembled box then is stacked to await use or carried to a low bench to be packed.

A paper liner is inserted for great-

(Continued on page 84)

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ALL-PURPOSE PLASTIC for wood finishes!

. . . . Applies like putty . . . . Sticks like glue!

FAMOWOOD is the answer . . . where wood finishes are important. Simple to use . . . efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. Dries quickly, does not shrink. *Stays put* under adverse conditions.

FAMOWOOD sands easily, does not gum up sander. *Takes spirit dye stains freely.* Waterproof and weatherproof when properly applied. Ready to use—*"right out of the can."* Fifteen matching wood colors with matchless wood finishes.

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Actually it doesn't take a scientist to determine this equation. It is merely our way of graphically telling you that Fair Price, Rapid Service and High Quality are the three ingredients that go into all of PAMUDO'S operations, serving over 5,000 dealers throughout the United States.

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WAREHOUSES IN 5 PRINCIPAL CITIES

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- Kansas City 5, Kansas
- Chicago 38, Illinois
- Baltimore 31, Maryland
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(Continued from page 82)

er protection against dust and moisture and a hoist is lowered by a hoist into the box. Two pieces of wooden special interior packing are placed across the top of the hoist and nailed to the box sides to prevent shifting during shipment or handling. The various accessories and fittings, some cartoned and some loose, are then placed in the box and it is closed speedily and easily simply by engaging the wire loop fasteners.

A strong favorable reaction resulted immediately upon the change of packing, according to Mr. Schmus. Use of the wire loop fasteners permits dealers to open a box for quick inspection and to remove or add accessories as ordered by his customer. With the former nailed container, opening a box for inspection or to service accessories more often than not ruined the container and put the dealer to considerable trouble.

By having the company's trade mark and an eye-catching legend printed in bright blue on both the front and back sides of the wirebound boxes, added to the value of the packing conversion by helping to merchandise its products.

Wood

You believe it?

The large dimensioned long timbers of Douglas fir have been exported to nearly every country in the world for heavy construction of all kinds.

?

Wane within the limits likely to be permitted by other considerations has a comparatively small effect on strength.

?

America's first commercial sawmill began operations at Berwick, Maine in 1631.

?

The "peavey," one of the most useful of logging tools, was invented in 1858 by Joseph Peavey, a Stillwater, Maine, blacksmith.

?

In 1950 more Mahogany was imported and used in the United States than any year in our history.

?

One of the largest private collections of different wood specimens is owned by a man in Maryland and contains more than 3,000 species of wood gathered over a period of 15 years.

?

Because so much sound lumber can be remanufactured from the huge timbers salvaged in the modernizing of many of the Pacific Northwest's older buildings, a saw has been developed which, it is claimed, embedded nails will not materially damage.

?

In an average year more than 33 million board feet of lumber goes into the manufacture of sporting equipment and athletic gear. This is enough wood to build 3300 houses.

?

Moisture content of interior finish in the arid Southwest averages 6%. Along the coastline of Southern California, Southeastern states and the Gulf states it averages 11%. The rest of the nation averages 8%. Exterior lumber and sheathing may be about 3 points higher.

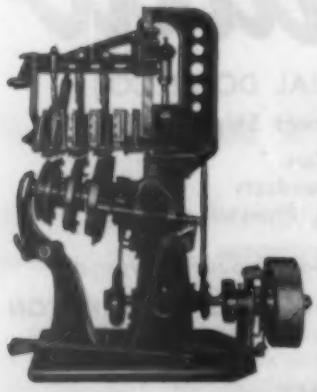
?

The scientific name for Western red cedar, Thuja plicata, means "a tree with sweet smelling wood whose leaves are folded and plaited."

THIS ONE STAPLER WILL-DO THE JOB

All your basket and hamper requirements can be filled on this one stapler–the St. Joe Model 234. Quickly and easily changeable from one style to another without sacrificing quality.

Offering you the advantages of the very latest improvements in the hoop lap evener, roller type hoop guides, angle bottom head, and stave and bottom bumper. Write for full details on this stapler and others. No obligation.



Model 234 with end gate mechanism for making baskets.

8 quart Jersey Peach Basket

16 quart Jersey Peach Basket

½ Hamper

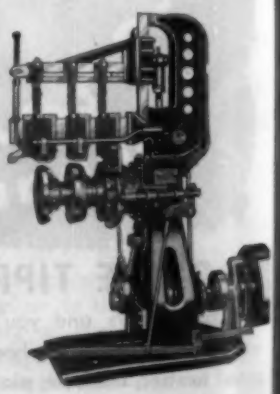
The St. Joe Tub Basket Stapler is fully adaptable for making hoop hamper type baskets, veneer or plywood drums, as well as many other cylinder type drums and the shell type baskets having the stitched-in or dropped-in bottoms. Due to the smooth performance of the model No. 234 under all types of conditions it is a proven profit maker.

Veneer Drum

Half Bushel

One Bushel

Our 75th Anniversary



Model 234 with form for making veneer drums.

1877 **St. Joe Machines, Inc.** 1952

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ST. JOSEPH MICHIGAN

It's INSIDE

Hidden in the dark interior of the camera is the vitally important film . . . on which, in large measure, the quality of the finished picture depends. Change the type of film inside, and you change the picture results.

Similarly, the toasted and charred inner wall of the barrel in which your fine whisky is aged governs, in large measure, the color, flavor, and aroma of the finished whisky. Therefore *you must know* that the red layer and the char inside are *right* . . . and that every barrel is *uniform.*

All barrels look black through the bunghole, so you must buy your barrels on faith in the reliability of your cooper. Blue Grass barrels justify your faith. Right in every detail, they are precision-built of prime white oak, and always uniformly fired and charred, under electronic control, precisely to your specifications.

In addition, at no extra cost, you may have the money-saving advantages of the Blue Grass Efficiency head. Write for details—or plan now to order Blue Grass cooperage.

LOOK FOR THE "B" ON THE RIVETS

it means:

Prime white oak
Thoroughly air-dried
Precision firing
Uniform charring to specifications
Blue Grass efficiency head
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BLUE GRASS BARRELS are used exclusively in the aging of **OLD FORESTER***

*Bottled in Bond, Kentucky Straight Bourbon, 100 Proof

UHL–

(Continued from page 25)

those talents which have made that company outstanding in the annals of the lumber industry. The objective which he set forth for the company was to sell more and better wood products and to help develop through research and engineering more and better utilization of our forest resources. The company was started in 1933 with an investment of only $32,000.00. In the past 18 years, at no expense to the lumber industry, the Timber Engineering Company from the sales of its own products has spent in research and engineering $816,000.00 and in sales promotion and advertising to help hold old lumber markets and develop new sales outlets, it has spent $2,650,000.00.

From these expenditures, all based on research, lumber manufacturers in the United States have realized the sale of 1,618,350,000 board feet of lumber. The sale of these 90,000 odd carloads of lumber was made possible because of the use of connectors. The value of that lumber amounts to almost $70,000,000.

Speed Production WITH COLPRES 10 GLUE

With Colpres 10 a furniture manufacturer of cherry and maple colonial spool beds now glues in ½ work day what formerly required 24 hours and 2 shifts.

Hardwood or softwood parts glued with Colpres 10 are ready for machining in ten minutes.

Colpres 10 is a quick setting, two part, room temperature urea resin adhesive. It is water resistant, non-staining, and is unsurpassed for strength and its cold, quick setting characteristics.

Send us this ad clipped to your letterhead for copy of our technical bulletin and free sample of Colpres 10.

TIMELY SUGGESTION — Have our Laboratory test your glued wood parts for meeting Government and industrial specifications for strength, moisture resistance, etc.

TIMBER ENGINEERING CO.
1319 18th ST., N. W., WASHINGTON 6, D. C.

Under Mr. Uhl's direction the Timber Engineering Company has utilized the value of research to a very great extent. Over 7% of its sales has been reinvested in research. The company built and operates one of the outstanding wood research laboratories in the country.

In 1945 concurrent with his duties in the Timber Engineering Company he served as acting manager of the National Lumber Manufacturing Association following the resignation of Wilson Compton.

Mr. Uhl has been a trustee of the Covenant-First Presbyterian Church and the National Presbyterian Church for many years. He is a member of the University Club of Washington, D. C.

ELMENDORF–

(Continued from page 25)

Flexwood–Flexible wood wall covering, applied to plaster walls for fine interior decoration.

Mengelbord–Hardwood plywood wall board.

Plymetl–Metal faced plywood used in the construction of Pullman cars and cabs of Diesel locomotives.

Texbord–Bevel-edged wall panelling in five woods, applied to walls with a pressure-sensitive adhesive.

Parkay Flooring–Flexible wood flooring made in squares and wide planking laid on concrete floors with an adhesive like linoleum.

Derby Flooring–A patterned oak floor laid without the use of nails.

Besides the well known tearing tester for paper which bears his name, Elmendorf has developed devices now in extensive use for testing wear resistance of floors, toughness of wood, the strength of shipping containers, and the workability and consistency of plaster. His mathematical instruments for measuring rates, known as differentiating machines, have been described in leading scientific journals. More than sixty U. S. patents have been granted to Elmendorf.

Elmendorf was granted the award of Modern Pioneer by the National Association of Manufacturers in 1940.

WOODICTIONARY

EMPTY-CELL PROCESS

Any process for impregnating wood with preservatives or chemicals in which air is imprisoned in the wood under pressure.

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